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PORT OF LONDON AUTHORITY: COMPETITIVE DESIGN FOR THE NEW HEAD OFFICES. BY MR. J. REGINALD TRUELOVE, A.R.I.B.A.

THE REPERTORY THEATRE, LIVERPOOL. PROFESSOR S. D. ADSHEAD, F.R.I.B.A., ARCHITECT.

BAROQUE ARCHITECTURE.—I.: S. MARIA DEGLI ANGELI, ROME; S. GIORGIO, VENICE.

ILLUSTRATIONS IN TEXT.

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"FLOWERS OF ART."

ART blossoms forth in many strange and wayward flowers, which linger on imperishable, in out-of-the-way and forgotten places; also beneath our careless footsteps. Wherever they be, however, they are worth seeking out, these modest, and comely, and retiring blooms. There are many such scattered over the fertile bosom of the globe. That pellucid air of Greece was favourable to their growth, and so they sprang up, in marble statue and relief and vase; shapes never to be surpassed. What was the urn with its "still unravished bride of quietness" but such a flower!

"O Attic shape! Fair attitude! with brede
Of marble men and maidens overwrought,
With forest branches and the trodden weed;
Thou, silent form, dost tease us out of thought
As doth eternity. . . ."

And the figure of Demeter in the British Museum is another such an one; Demeter, the bountiful, sitting calmly watching the fruitful earth give up her riches to invigorate man. Were fairer flowers ever used to adorn architecture than the Caryatides of the Erechtheum? Pale figures, cut in the shape of maidens, which look towards the sun at its zenith, their forms scarcely veiled by the draperies which fall down in delicate lines, like falling snow to their feet; how nobly they stand whilst the centuries pass slowly by as a lingering procession—lingering lest they lose such beauty! Mutilation has not stolen their dower of grace, nor the fraying finger of time. They are still surprising as they stand, almost Sphinx-like, so exquisitely poised that any movement would rob them of something of that completeness, that perfection, which was the aim of Attic work.

There is a fragment of a small bas-relief of a charioteer, also in the British Museum. The figure leans forward to keep his balance, whilst his long robe trails out behind, blown from his figure by the wind of the chariot's headlong progress. It is a great moment petrified, the joy of rapid movement, almost of flight, expressed in marble. There is nothing else like it, if it be not the relief of "mænads dancing," in which the fall of drapery is similar, and conveys another idea of motion. Again, the "winged Victory" of the Louvre seems poised ready for flight into the Empyrean.

These blossoms and numberless others may be gathered from Attic soil; for it is as rich as any fabled garden of the Hesperides, different only in this—there is no let or hindrance to the ardent seeker.

Greece and Italy are inseparably linked together, and it has been said that the short age of Pericles and the XVth and XVIth centuries in Italy were the most fruitful for art in the history of the world. Both were periods of transition or awakening, if you will, from the petrified civilisation of Egypt, from the bondage of mediæval ideas. What Mr. L. March Phillips said of the first equally applies to both. He writes:—"It is, in all truth, a moment of birth, comparable almost to the moment, as the great Florentine has conceived it, when the first of our race felt the touch of the divine finger and opened heavy eyes in which the light of intelligence and recognition for the first time was kindled." So we shall find also many delightful flowers of art in Italy. The painting of Botticelli, for example, with the fair Simonetta as central figure, as the sea-born goddess, as the Virgin, as Judith—*La bella Simonetta*, with the

strange and wistful smile, who died in early youth and was borne to her grave with her beautiful face exposed.

For example, the delicate sepulchral sculpture of Mino da Fiesole; the modelled *tondos* of Luca della Robbia, whose light and colour seem to bring down the sky into the dark recesses of Florentine streets; Cronaca's church of San Salvatore del Monte outside Florence, which Michelangelo, for its quietness and grace and unadorned beauty, was wont to call "his fair country-maiden."

These be flowers of high culture, but there are others of a wilder growth, yet beautiful as the dog-rose of an English hedge-row. Some of these, and not the least interesting, are to be found in the Renaissance monuments in our own churches. They do not possess, it is true, the pure artistry of similar Italian work, but they have a quiet and reposeful quality all their own. Nothing could well be more peaceful than these seemly gems of architecture, with their carving and ornaments finely coloured and gilded, with their effigies of the long since dead cut "in monumental alabaster."

Architecture has for its chief use the housing of the living in their varied and manifold activities, it has also always been of service to religion and to the dead. It is this last aspect that at present engages us. Certainly no more fragrant flowers of art have ever blossomed than these dedicated to the memory of our ancestors. Egyptian foolishness conceived a pyramid, and the Greeks, with their bright humanity, expressed the sadness of parting, of "farewell." The Renaissance, with all its pseudo-Paganism, could not, if it would, be rid of Christianity, and its monuments speak of peace and rest. In their presence death is no dread contingency, it seems well to lie stretched out through the centuries free of the turmoil we call life.

In all European countries the Renaissance produced these monuments, many of singular beauty, but all possessed of a fine and notable character. In Italy, at least, the classical stories were carved side by side with those of Christianity. Browning, in "The Bishop Orders His Tomb," shows how Italian prelates viewed art—how sacred and profane things had to be blended together by the unifying power of art. Just as Botticelli depicted the foam-born goddess with draperies and emblems of a Gothic origin, just as Michelangelo in the Doni Madonna introduces "the unveiled human form, the sleepy-looking fauns of a Dionysiac revel, into the presence of the Madonna," so the sculptor endeavoured to reconcile Paganism with Christianity, to carve, indeed, as Browning says:—

> "The bas-relief in bronze ye promised me,
> Those Pans and Nymphs ye wot of, and perchance
> Some tripod, thyrsus, with a vase or so,
> The Saviour at his sermon on the mount,
> St. Praxed in a glory, and one Pan
> Ready to twitch the Nymph's last garment off,
> And Moses with the tables. . . ."

And we find in painting, on two opposite walls of the Vatican, Raphael's "Disputa" (which has been defined as the Glorification of the Christian Faith) and "The School of Athens." Whatever antagonism there may be between these and similar, or perhaps better, dissimilar, themes, the effect of the work of Mino and Luca della Robbia and others of the Italian artists is one of infinite peace and rest. As Walter Pater writes in his gracious way:—"Their noblest works are the careful sepulchral portraits of particular persons — the monument of Conte Ugo in the Badia of Florence, of the youthful Medea Colleoni, with the wonderful, long throat, in the chapel on the cool north side of the Church of Santa Maria Maggiore at Bergamo—monuments such as abound in the churches of Rome, inexhaustible in suggestions of repose, of a subdued Sabbatic joy, a kind of sacred grace and refinement." English sepulchral monuments never reached the pitch of the Italian ones, never attained to the calm perfection of the work of Mino, yet they were beautiful in their own way and full of a spirit of peace and contentment. Before the time of Nicholas Stone, effigies of knights and ladies, prelates and laymen had been executed by thousands of unknown mediæval craftsmen in stiff but not unbeautiful attitudes of rest. Until at last the figures took on the semblance of life or the stately repose of the dead. There they lie through the still centuries listening to "the blessed mutter of the mass."

In a way Nicholas Stone sums up the period when the first flush of the Renaissance in architecture lighted up England. He was born towards the end of the XVIth century, and his working life roughly coincided with the first half of the XVIIth century. It is probable that if he had studied in Italy his work would have developed along different lines. He did not, however, visit that country, and his work shows a strong Flemish tendency, the legacy of some early years spent in Amsterdam. Early in the XVIIth century he took a workshop in Long Acre, and from that time until his death he worked unweariedly at sepulchral monuments, which vary from elaborate pieces of architecture, like the Tanfield tomb at Burford, to simple mural tablets like that to "Mr. Law" at the Charterhouse. Unfettered as he was by a knowledge of the exquisite beauty and finish of Italian tombs, and which we may assume was beyond his scope, he was also free of all its conflicting Paganism and Christianity. We took so much from the Low Countries in the early years of the Renaissance that we have come to consider certain grotesque elements as typically English. They were, however, sympathetic to our tradition of virility. Something too of that morbid contemplation of death in the midst of life which renders some aspects of mediævalism so repellent still remained in art and sounds a very unharmonious note in some of Stone's lovely compositions. Even as late as Roubiliac this *macabre* element was present, witness his fine work in Westminster Abbey where a skeleton leans out and stretches upwards from the door of the tomb to the living figure standing above. Contrast this with the great design by Bartholomé in Père Lachaise, which possesses a tragic note almost Greek in its poignancy and beauty. The poor drooping figures pass through a square opening to the unknown. It suggests "Farewell," that saddest of all tombstone inscriptions.

It would not be reasonable to institute comparisons between, say, Mino da Fiesole and Nicholas Stone. A great gulf separates them. In the innermost garden there will be found flowers of rare culture, blooms of so exquisite a fragrance and form that it seems impossible for nature to compass the like again, and in the more open spaces, more free of God's wind and rain and sun, are flowers of more robust complexion, less perfect in form, but with some of the beauty of the wind-blown clouds. These may stand for Mino's works, those for our Stone's.

And Nicholas Stone, in the history of sepulchral sculpture, must stand alone in this country. His figures clothed in contemporary costume, armour or the softer garments of courtesy, are for the great part of exceeding beauty. A certain nobility in the cast of the faces, a dignity in their mien, is characteristic of his standing figures, as in those of the bearers of the Sutton monument in the Charterhouse. But his greatest figures are the effigies lying stretched out, which are all touched with one knows not what quality of gentleness. How well he disposes the mort clothes, how much he makes of the pillows and all the trappings usually dedicated to woe! In the purely classical figure he was not so successful—a certain stiffness is characteristic of the pose, although the draperies are skilfully arranged. His imitations of Michelangelo in the tombs of Sir George and Francis Holles at Westminster, however fine they may be, lack tremendously of the grandeur and profundity of the great Florentine. Bramfield Church, in Suffolk, possesses an example of his work that in its simple way is unsurpassed. In a niche, raised a little way above the square tomb, in a kneeling position, is the figure of a man, whilst underneath, lying on the tomb, a woman lies smiling, clasping a small child in her arms. The whole conception is so beautiful, the figures so exquisitely carved, that one is held as if by some strange charm. There is no discordant element, no charnel house to point a moral, no horrid gaping skull to turn light into darkness. They lived so long ago, they loved, gleamed for a little while, like the sunlit foam upon the waters, and passed away. And now in a little country church they lie together, husband and wife and child in attitudes of life for ever. All this sculptor's work possesses something of the charm of this tomb. Many are much more elaborate, more interesting architecturally, for Stone knew upon occasion how to set his figures in grandiose settings. And what is possible only in monumental work, he has worked out designs in the colours of many marbles. His carved and gilded armorial bearings are another element in the interest his work inspires. These are carved with a fine sense of their decorative importance and disposed with equal skill.

With beginnings like these—these fine flowers of art—is it not astonishing that this branch of sculpture should have died out or that it should have been long relegated to the Euston-road? We have fine sculptors in plenty, but their work somehow but rarely touches the tomb.

Instead we have the execrable monumental mason with his sentimental symbols and his appalling vulgarity. And a church, if it does not hold an old monument, holds nothing but glaring white marble slabs and ridiculous brass plates, with lettering which no one could read without effort, even if he had a mind to pause before it. Surely it is time that the revival in taste should touch these things and lift them out of the morass into which they are fallen. It is customary in Italy to write upon the lintel of the entrance to the Campo Santo these words, "Scuola del Migliori Pensiori." Art at least should endeavour to make it so, to make the cypress avenues blossom out again in delicate and lovely flowers of art, to make the churches hold once more those lovely effigies of the dead, to make, indeed, all places where she shows her gracious presence "a school for great thoughts."

ST. PAUL'S BRIDGE, THE POST OFFICE, AND THE TRAFFIC PROBLEM.

IN last week's issue we published a letter from Mr. Arthur Crow dealing with the important issues which demand immediate settlement in view of the fact that it is proposed to start building operations on the old Post Office site during the next few weeks. We now publish, in order to illustrate this subject, a plan of a portion of the City of London as it exists, and on this a new road is indicated which Mr. Crow suggests should be formed to relieve the traffic in the neighbourhood of the Bank. The proposed new road would form a curve in continuance of Newgate-street to London-wall, cutting through Gresham-street and Aldermanbury, and relieving traffic from Liverpool-street from the necessity of traversing the business heart of London in taking a westward direction, and correspondingly affording relief to the crowded area round the Bank and the Royal Exchange.

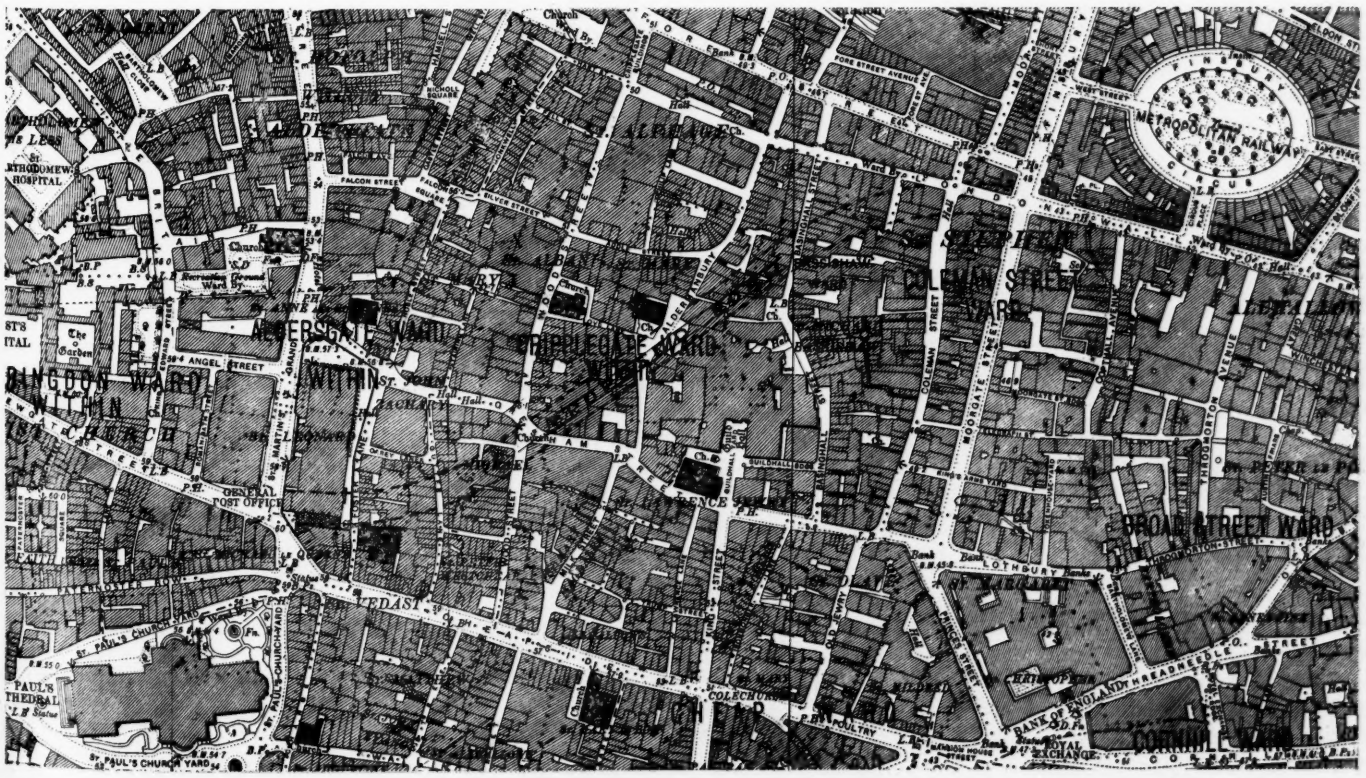
The relation of this question to the approaches to St. Paul's Bridge is shown in a second plan, which we illustrate herewith, in which Mr. Crow has indicated how the space immediately east of St. Paul's Cathedral might be dealt with.

As the first of these proposals, that of a new road, can hardly be said to be yet within the range of practical politics, we should be inclined to lay down as an axiom that any treatment of the approaches to St. Paul's Bridge should be capable of being considered as an independent problem, which, to be sound, must be defensible both from the point of view of the architectural amenities of the situation and also from a practical point of view. If such a scheme fits in and forms a convenient section of a greater improvement, viz., a road diverting traffic from a congested centre, such would form an additional merit, but in the first case we should deal with the smaller problem separately.

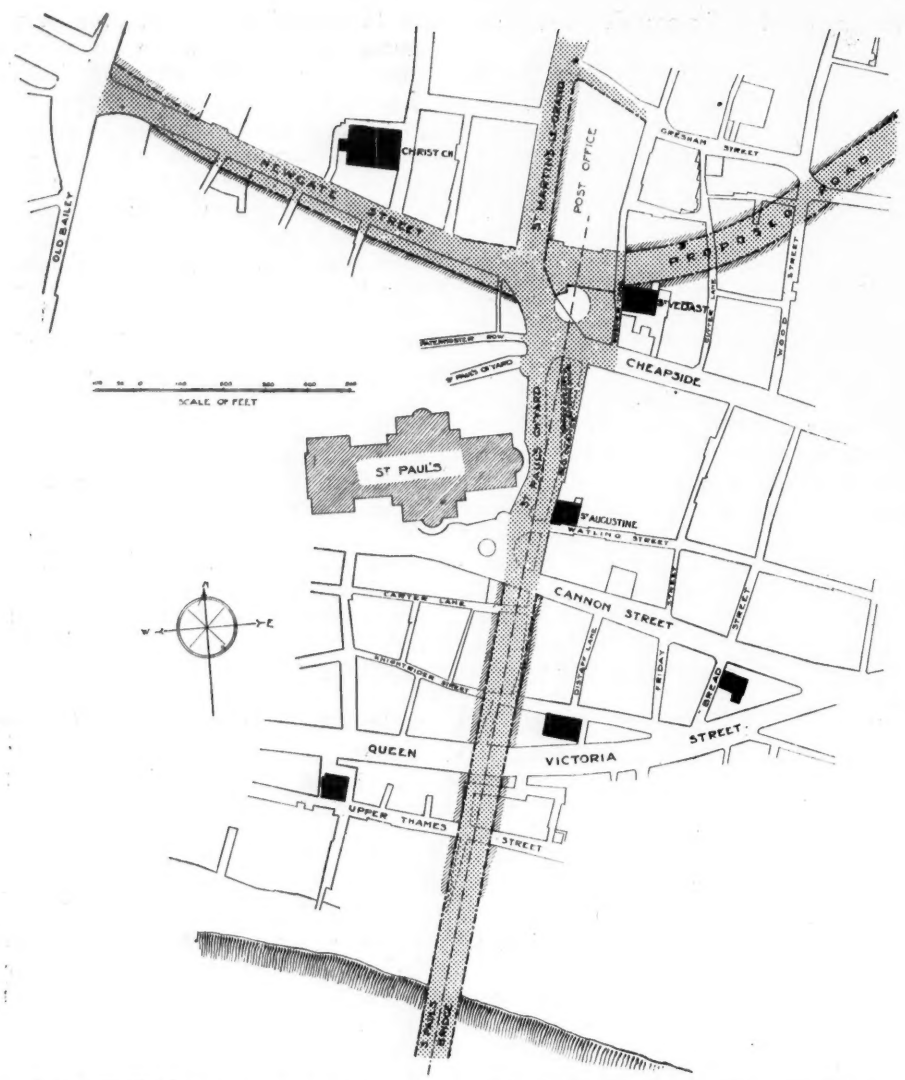
From a traffic standpoint there seems to us to be much to be said for the provision of a greater amount of space at the junction of such thoroughfares as St. Paul's-churchyard, Cheapside, Newgate-street, and St. Martin's-le-Grand, and, although the scheme destroys a valuable corner block at the junction of St. Martin's-le-Grand and Cheapside, we consider the loss is more than counterbalanced by the gain, while it may be pointed out it increases the value of the frontage to Foster-lane, which adjoins the Church of St. Vedast, and which would, if this scheme were carried out, front on to the new open space formed. Architecturally the scheme would open up to view the Church and steeple of St. Vedast, one of the most charming of Wren's smaller designs. The destruction of the narrow wedge-shaped block between St. Paul's-churchyard and Old Change seems abundantly justified commercially by the greater value which would be given to the buildings facing on to the widened road formed, while architecturally no worse or more unharmonious group can be imagined than the great mass of the apse of St. Paul's and the end view of the narrow wedge of commercial buildings which would be otherwise left. We now learn that the London County Council have considered and agreed to the abolition of this block, so that Mr. Crow's suggestion in this respect is embodied in the agreed scheme.

The third element to be considered is that if the scheme were carried out the end of the vista which would face the approach from the bridge would be an elevation of the new Post Office buildings rather than a group of mean-looking commercial buildings fronting on to an irregular or broken curve. The exact alignment of this new frontage would naturally largely depend on the probability or otherwise that some such new thoroughfare as Mr. Crow has suggested may in the future be carried out; but we consider that as to the general desirability and feasibility of carrying out the scheme there can hardly be an adverse opinion. Nor can there be any doubt as to the desirability of bringing about a conference for joint consideration between the Corporation and Government authorities, and that these bodies should ask their expert advisers to consider the questions raised before the new Post Office building is started would seem to be but common sense.

It may be urged that if these buildings are set forward in line with the edge of St. Vedast (practically the boundary of the site), even if the shops on the corner are done away with and a suitable end façade designed, this would, though meeting present wants, doom St. Vedast to destruction if a new road eastward at this point has subsequently to be made. So that we feel the frontage line proposed to be a reasonable one looked at from all points of view. If the scheme as here shown should be too



A Proposed New Road in the City, shown by Dotted Lines. (From the Ordnance Survey Map.)



St. Paul's Bridge, the Post Office, and the Traffic Problem : Proposed New Road.

costly to be at present contemplated in its entirety, it would be quite possible to leave the shops at the corner for the present, designing the end of the new Post Office buildings so that it may be subsequently opened up to view.

It is unfortunate in this, as in other cases, that it should be necessary to ask for changes in schemes which have no doubt been carefully and thoroughly considered, like the plans for Sir Henry Tanner's new buildings at St. Martin's-le-Grand. This is, however, due to no fault of the designer. All that architects have been asked to do for years is to fill in a given site in the best way possible. That has been the extent and limit of their duties. It is now being more widely recognised every day that we must act collectively as a profession in order to do our best to ensure that areas and public places are dealt with collectively on broad and well-considered lines, and that public authorities should take advice on these subjects and form schemes which can be carried out with benefit to the public. But in the transition stage, which we have reached, it obviously must be necessary in many cases to act later when we should have acted sooner, frequently thereby causing no little inconvenience to individuals.

It is certain that until the principles which should govern the lay-out of cities and groups of buildings have received more attention, and our experience has in a measure become codified, it will frequently be necessary to consider and reject schemes which enthusiasts may bring forward without due consideration of practical requirements or of cost. But the suggestions we illustrate to-day are not in this category; we think they would commend themselves to good business men who had mastered the facts.

With regard to the larger question of an additional road for traffic diversion, we would say that there are very great reasons for considering that such a road must in the near future be made, and on the face of it Mr. Crow's suggestions seem to us to be reasonable. We may add that a rough estimate of the cost of such road as far as freehold interests are concerned places its cost at 3,000,000*l.*, reduced to a net cost of about 1,500,000*l.* by the resale of portions of the sites acquired and the increment which would be added to the value of property facing on such a new thoroughfare.

Mr. Crow would further propose to widen Newgate-street along its southern side so as to render it a reasonable continuation of Holborn-viaduct instead of a bottle neck between it and Cheapside. He points out that such an improvement would be made without disturbing the frontages to the Central Criminal Courts and the new Post Office frontage to Newgate-street. This, however, is a question which has not to be dealt with immediately, but it may well be considered in its relation to the changes which have to be made adjoining St. Paul's Cathedral.

THE MANSION HOUSE.

Some necessary sanitary repairs and improvements are about to be effected in the Mansion House at a computed outlay of about 700*l.* It is further proposed to expend 1,400*l.* upon the construction in duplicate of an artesian well.

NOTES.

The Monumental Mason. OUR leader this week touches upon a subject of widespread interest, but one that is suffering from the need of well-directed thought being focussed upon it. All through the ages the skill of the artist has been bestowed upon the memorials of the dead, mighty and humble alike. The greatest artists have felt that the simplest monument entrusted to them meant an opportunity to give of their best, to enrich the treasure store of the world with another "flower of art." With our cruder light and our rougher materials, our own artists have not vied out-of-doors with the refinements proper to the memorials which have been set up in countless numbers under a brilliant sky, notably in Greece and Italy. But we had, nevertheless, our traditional types of monument and headstone of appropriate design with beautiful lettering, from one end of England to the other, down to the beginning of the XIXth century, as a visit to many a hallowed acre reveals. Well may we ask, "Is it not astonishing that this branch or art should have died out?' A long-suffering people, we are, even at the last, at the mercy of the monumental mason, who, all unconscious of the meaning of the word "monumental," piles upon us heaps of vulgarity in the form of dishonoured marble, stone, and granite. To the architect, the sculptor, or the trained craftsman now and again has been given the opportunity to do something, and he has often risen to the occasion, but for various reasons, the people at large are at the mercy of the onslaughts of the monumental mason, who pursues "the bereaved" with his execrable designs at a time when they are least able to make protest, even if they knew how to make it. A few weeks ago we stated, "It is evident that scarcely any article of everyday use has been neglected by the thoughtful designer," and we believe this to be one of the happy outcomes of the deepening interest and appreciation of architecture and the arts which is one of the most encouraging outlooks in England to-day. But monuments and headstones are not articles of everyday use. They are more than that: they are for all time, and need to be handled with greater reverence and care for that, if for no other reason. Yet for one memorial that does not offend, there are thousands set up every year inspired from no better source than an illustrated catalogue, prepared apparently by "designers" who cannot ever have set eyes upon even our own traditional examples of the craft, let alone those of our neighbours across the Channel. If they have travelled, however, no farther than the nearest XVIIIth-century churchyard, and come away unmoved, it clearly gives further proof, if any were needed, that the lessons to be learned have not been heeded. There is "a general elevation in the standard of public taste" without doubt, but the public must call for improvement in this as in other matters, and they will find that the call will be answered by an army of trained artists who are not only able but anxious to answer the call.

Baroque Architecture.

We publish in this issue the first of a series of articles by Mr. Martin Shaw Briggs, A.R.I.B.A., formerly Extension Lecturer to the Universities of Oxford and Leeds. Mr. Briggs has studied the subject of Baroque architecture for many years, and some of his thoughts were published in 1910 in his book, "In the Heel of Italy." He will in these pages give to our readers his complete observations on this fascinating though often condemned phase of design. His knowledge has been gained first hand in every country of Europe, and the articles, we feel sure, will be found to be of much value. Baroque signifies, according to the dictionaries, "rough, rude, uncouth, grotesque, in bad taste," but such definitions as applied to architectural design are often entirely misleading. Much more finely-conceived and inspiring architecture comes under the heading of Baroque than is commonly acknowledged in England to-day. The articles will be illustrated by numerous photographs and sketches, and the developments of the style in the principal countries of Europe will be followed.

Bridge-street, Lyme Regis.

The old cottages at Guildford have been saved, as announced in our columns last week, but another street-widening scheme still threatens to deface that most charming old-world thoroughfare, Bridge-street, Lyme Regis, and to destroy the fossil shop at its corner, together with other interesting buildings. This street forms another "neck of a bottle" as explained by us in former issues, but in this case also there are alternative schemes which could be adopted and which would preserve some of the most characteristic features of a very ancient borough. Unfortunately, we believe the Corporation have already somewhat tied their hands by entering into contracts for the purchase of the buildings, but this might yet facilitate matters, as the sanitary conditions of these old houses could be seen to. As the leases do not terminate for some few months it appears that some arrangement might yet be come to for sparing this very small section of a beautiful street which many of the ratepayers are anxious to see retained.

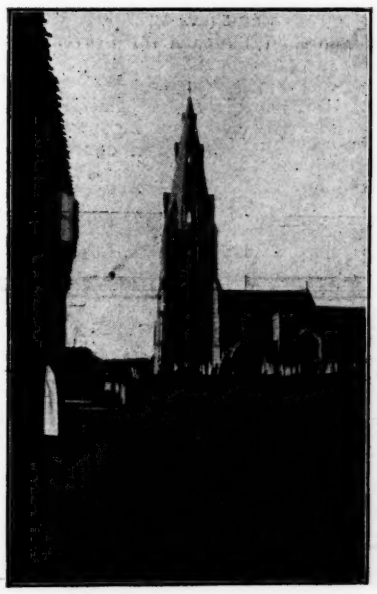
The A.A. Annual Excursion.

This is a busy week for those members of the Architectural Association who are availing themselves of the advantages of an organised tour in a corner of England rich in architectural interest. With Shrewsbury as headquarters, the surrounding country is being explored, and already Much Wenlock with its delightful Prior's House, Allbright Hussey with its manor farm, and Moreton Corbet with its castle and church, as well as several other places, have been visited. The very names conjure up visions of beautiful things and historic associations. Owing to pressure upon our columns we are obliged to defer our account of the excursion till next week, when we hope, in addition, to reproduce many excellent sketches made on the spot by Mr. Sutton Wood, who has undertaken the pleasant, though possibly onerous task this year.

THE ROYAL ARCHÆOLOGICAL INSTITUTE AT NORTHAMPTON.

(Continued from page 168.)

Tuesday, July 30, began with an excursion to Fotheringay, where Mr. W. H St. John Hope first described the church. It had, he pointed out, been an ordinary parish church from before the Domesday Survey, but was made collegiate in 1411 by Edward Duke of York. who built a splendid choir in place of the old chancel for the dean, precentor, and eleven other fellows, the eight clerks, and the thirteen choristers of the new foundation. The present nave and its aisles with the north porch, the western steeple, and its eight-sided lantern, and a destroyed south porch, were built by William Horwode, of Fotheringay, precursor, in accordance with a contract entered into between him and two commissioners acting on behalf of Richard of York, dated September 24, 1434. By this contract Horwode undertook "to make up a new body of a kirk joyning to the Quire of the College of Fodringhey, of the same hight and brede that the said Quire is of; and in length xxiiij fete fro the said Quire donward withyn the walles." In the aisles were to be windows agreeing or "accordying in all Poynts unto the wyndows of the said Quire, sawf (that) they shall no bowtels haf at all." The contract specifies also the making of west windows to the aisles and nave, and the embattling of their walls, and of "six mighty Botrasses of freestone clen hewyn"; also of a clearstory "groundid upon mighty Pillars with four respounds." The pillars were to carry "five arches abof the stepull and abof every Arche a wyndow . . . of four lyghts according in all points to the wyndows of the clerestory of the said Quere." For the support of the roof there were to be built over the aisles "six mighty Arches butting on aither side to the clerestory," and two other mighty arches "butting on aither side to the said stepull." The steeple was to be built within the church "upon three strong and mighty arches [? and] vawthid with stoon," and to be square below, but with its upper part "chaungid and turnyd in viij panes" with "clerestorical windows . . . eche window of three lights." All the carriage and "stuffe, that ys to say, stone, lyme, sonde, ropes, boltes, ladderis, tymbre, scaffolds, gynnes, and all mannere of stuffe that longeth to the said werke" were to be found by the Duke of York, who was also to pay William Horwode 300*l.* in all for carrying out his contract. Various discrepancies between the contract (which referred only to the masonry work) and the building, Mr. Hope thought might partly be due to the corrupt text, which was known only from the version printed by Dugdale, and one important section was both defective and apparently misplaced. The choir was unroofed after the suppression of the college and eventually cleared away, with the exception of the arches (now walled up) at its western end between it and Horwode's new body. That into the choir has over it the mark of the roof of the old nave, and above, a window that looked westward from the choir over it. The nave, aisles, and steeple escaped destruction through forming the parish church. The nave is four bays long, with a narrow easternmost bay filled on either side with "two perpeyn walls . . . of freestone, clen wroght, that is to say, oon on aither side of the myddle Quere dore; and in either wall three lyghts and lavatoris in aither side of the wall, which shall serve for four auters, that is to say, oon on aither side of the middel dore of the said Quere, and oon on either side of the said isles." Against the walls now stand two interesting monuments, set over the bones and gravestones of Edward Duke of York and his son Richard, the builders of the choir and nave, by Queen Elizabeth, who removed their remains out of the ruined choir. The aisles are seven bays long, and overlap the steeple, which has on the corners of the square belfry octagonal turrets carrying crested helms of the Duke of York, and on the top of the lantern a great copper vane formed of his badge, the falcon and fetterlock. The church contains a good font of the date of the nave and a beautiful contemporary pulpit (with a Jacobean canopy over the original one) with the arms, etc., of King Edward IV., and has a good series of open wooden roofs. The college cloister and buildings stood to the south of the destroyed choir, and have likewise utterly perished.



Polebrook Church.

From the church the party walked to the Castle, which Mr. Hope described as a good example of the mount-and-bailey castles planted all over the county by the Normans; in this case to control the passage of the Nene. Its defences were still of timber in 1215, but by 1341 the great tower had been built in stone and cement, and the Castle also contained two chapels, a great hall, two lodgings, a kitchen and an oven, and a gatehouse with chamber over, in front of which was a drawbridge. Edmund of Langley is said to have rebuilt the great tower in form of a fetterlock, but Mr. Hope said he was not aware of the fetterlock being one of his badges. Leland ascribes the "refreshing" of certain "very fair lodgyns" in the Castle to "Catarine of Spain," and these probably formed the apartments of Mary Queen of Scots for the few months previous to her beheading in the great hall on February 1, 1586-7. The whole of the castle buildings have gradually disappeared, and the only monument of them is a fallen block of rubble from the great tower. Mr. Hope spoke strongly against the proposal to enclose this with an elaborate railing, for which quite a large sum had already been subscribed by well-meaning but foolish persons, and suggested that the money could be spent with far greater advantage in excavating the site of the great hall in which Queen Mary died, and other of the Castle buildings.

Tansor Church was next visited and described by Mr. Hamilton Thompson as an interesting example of development of plan from an aisleless chancel and nave to a building with aisles and a western tower. In the chancel are seven stalls with carved misericords, believed to have come from the destroyed choir of Fotheringay College, and with much probability, since they exhibit the falcons and fetterlocks of the house of York.

The journey was then resumed to Oundle for luncheon, and afterwards to Warmington, where Mr. Thompson called attention to the many features of interest in the parish church. It consists of a chancel, nave with aisles and clerestory and vaulted north and south porches, and a western tower and spire, all of excellent work of the middle of the XIIIth century, to which date belongs also the singular sexpartite vaulted ceiling of wood over the nave. Part of the XVth-century rood screen remains, together with a wooden pulpit of the same date, with paintings of Our Lord and the four doctors, which have been ignorantly "restored." The east end of the north aisle is shut off by a curious enterclose of Renaissance woodwork.

Polebrook Church was the next objective, and was shown by Mr. Thompson to have been cruciform originally, with a tower over the crossing, and perhaps aisles to the nave. Early in the XIIIth century the tower was replaced by a new one with spire at the south-west corner of the church, since there was no room west of the nave, and the remainder of the building, with the exception of the north arcade and chancel arch, was also reconstructed, and north and south porches added. The arcaded walls of the enlarged north transept are noteworthy; also the early XIIIth-century font, the rood screen, and the Jacobean pulpit with its hour-glass and stand. A long

discussion was raised by Sir Henry Howarth, who questioned the pre-existence, both here and in other churches visited during the meeting, of towers over a crossing which have now disappeared. Mr. Thompson and others quoted numerous examples in favour of such towers and the proofs of their existence, but the President remained unconvinced.

After tea at Oundle the fine church of that town was visited. This, until late in the XIVth century, undoubtedly had a tower over the crossing, as Mr. Thompson pointed out, but in the XIIIth-century chancel, aisles, and transepts were all enlarged, and subsequently the tower was replaced by the present beautiful XIVth-century steeple, with its crocketed spire at the west end. Late in the XVth century the vaulted south porch, with its upper chamber, was built, and later still the large two-storied vestry on the north of the presbytery. The rood screen has been cut down, but the parcloses towards the chancel aisles remain, as well as the fine XVth-century pulpit and a gospel eagle lectern of latten. Beneath the south transept is a large bone-hole.

In the evening the annual general meeting of the Institute, for members only, was held, and subsequently Mr. C. A. Markham read a paper on the Ancient Roads and Bridges in Northamptonshire."

Wednesday, the 31st, the last day of the meeting, was likewise the wettest. Brixworth Church was first visited, under the guidance of Mr. Thompson, who cited reasons for its ascription to so early a date as *c.* 680, and pointed out the evidence for the triple arch that originally divided the nave and presbytery. The church seems to have been burnt by the Danes in the IXth century, and was afterwards patched up for use again by pulling down the aisles and walling up the arches, and carrying up the western porch as a tower, which was subsequently raised and a circular vice added west of it. The polygonal apse at the east end appears, like Wing, to have had a vaulted ambulatory about it, but there are no definite signs of a crypt or *confessio*. The lofty clearstory, with its large window openings, is noteworthy, and there are some interesting remains of the XVth-century rood screen, but not in place. The south chapel and the spire date from the XIVth century.

The journey was then continued to Holdenby House, which Mr. Gotch described as "only a memory" of the largest Elizabethan mansion that had been built in England. It was erected about 1580 by Sir Christopher Hatton from the designs of John Thorpe, and consisted originally of two huge courts divided by the great hall and entered from a great courtyard, with gate-house and flanking arches, as at Kirby. About 1608 the house passed into the possession of the Crown, and eventually became one of the places of detention for King Charles I. After his execution it was sold, and shortly afterwards hurried into decay. All that is now left of the former glory of the place is a portion of the kitchen wing, which has been converted into a house, the two arches of the courtyard, and some traces of the terraced garden.

The parish church, which stands just to the south of the house, is noteworthy for the fine Renaissance screen, which came from the chapel of the destroyed mansion, and is shown on Thorpe's plan.

After luncheon at Northampton a visit was paid to Earl's Barton Church, with its remarkable Saxon tower. The chief peculiarities of this were indicated by Mr. Thompson, who also called attention to the Norman arcading on the chancel walls and the re-use of parts of it to form later sedilia. Mr. Hope also added some remarks about the Castle mount hard by, and in reference to the low side windows quoted entries relating to the making of one in the royal chapel in Windsor Castle, on an upper floor, early in the XIIIth century, and of another in the great hall of the Castle (now destroyed) when it was fitted up as a temporary chapel for the dean and chapter in the reign of Richard II.

The journey was then continued to Castle Ashby, where the great mansion of the Comptons, begun probably between 1583 and 1589 and finished in 1624, was described by Mr. Gotch. The ranges of chambers are disposed about a courtyard, but have internally undergone much renovation. Externally the house is remarkable for the Latin texts forming the balustrades of the parapets and for its fine gardens and lay-out.

The day's proceedings closed with a visit to Cogenhoe Church, which was described by the Rev. R. M. Serjeantson, and then the Northampton meeting came to an end.

The meeting, except for the showery weather, was in every way a success, about one hundred tickets having been disposed of, and all credit is due to the Honorary Secretaries of the meeting, Mr. E. L. Guilford and Mr. G. D. Harding-Tyler, for the way in which they carried out the arrangements of a very full programme.

THE ROYAL SANITARY INSTITUTE:
CONGRESS AT YORK.

(Continued from last week, page 172.)

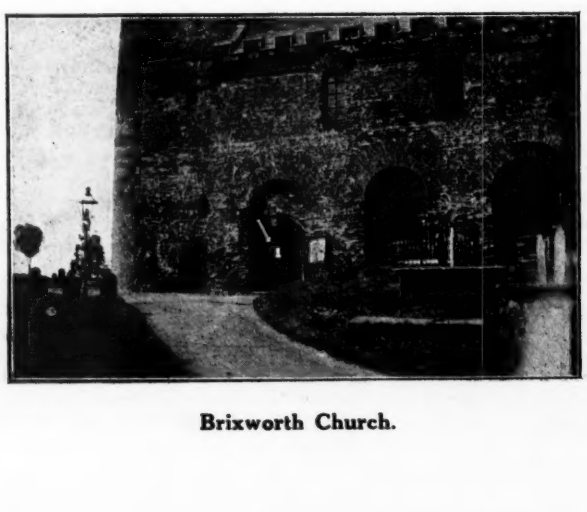
Ventilation and Warming of Churches.

In the absence of Mr. J. Osborne Smith, F.R.I.B.A., his paper on the above subject was read by Mr. Saxon Snell. Having dealt with the present prevailing unhealthy state of things in churches, he said the requirements necessary to make the interior of churches healthy for use and occupation might be briefly stated thus:—(1) Ample means of cross-ventilation from openings in opposite sides of the building below or near the breathing line, in order to get rid of foul air at the very spot where it is generated. Cross-ventilation is also desirable high up near the flat ceilings, or in the sloping roof spaces, the openings being arranged to check or divert downward currents. (2) The inlets for fresh air to be as short as possible, capable of being readily cleaned, well distributed, and allowing at least 1 ft. super. of clear opening to about ten people. (3) Adequate means for warming incoming air, so that it may be not only warm, but also pure and fresh as possible at the breathing line during services. Warming and drying air is a source of comfort, especially in a damp climate, but the drying can be so easily overdone as to be inconvenient. High temperatures should be avoided, and provision should be made for supplying additional vapour to the internal air when required. (4) Warmth just below open roofs, clearstories, and tall windows to prevent down-draughts. (5) Jointless solid floors, which can be readily kept clean. (6) Seats and fittings which do not obstruct the passage of light and air, or hinder the cleaning of floors. (7) Means for preventing the deposit and movement of dust. In cold weather, warmth, genial, all-pervading warmth, is desirable inside churches during occupation; the cold, bracing, breezy air, which is so enjoyable when one is moving about, is not welcome inside, where persons are sitting. Provision, therefore, must be made for:—(1) Warming incoming air during the services, as well as the inside air before occupation. (2) Preventing the inrush of cold wind currents from windows by fixing hopper lights to direct currents upwards, and from entrances by double doors opening outwards, and closed by checksprings, and by placing radiators or stoves near the entrances. (3) Preventing down-draughts by fixing hot-water pipes in roof spaces and below clear-story and other windows. (4) Generous warming apparatus, well distributed, without excessive temperatures either in pipes or warm air flues.

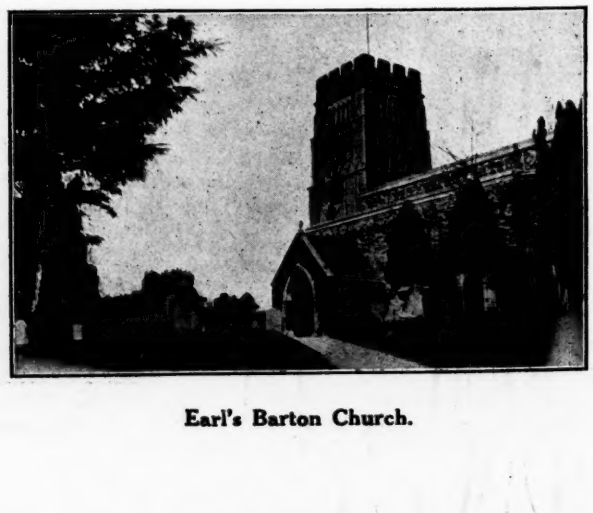
The author laid down the following methods of warming:—(1) Large close stoves near inlets for fresh air are very useful. (2) Underground stoves, the heat ascending through grating at floor level, are effective, but the air is often too dry and polluted by dust. (3) Warm-air apparatus, by which cold air is admitted either from the church or from outside to a furnace-room or battery of large pipes, and discharged into the church through vertical or horizontal gratings. This is usually an efficient arrangement, but the warmed air is liable to be contaminated by passing through flues and over pipes, which are cleaned only at rare intervals. (4) Low-pressure hot-water apparatus, with radiators having fresh-air inlets. This is effective and generally satisfactory when inlets are accessible for cleaning, and radiators are in suitable positions. (5) Low-pressure hot-water apparatus with pipes in channel. For reasons previously stated this is an insanitary method. It is also ineffective, as the heat given off is generally reduced by the non-conducting matter accumulating on the pipes. (6) Medium-pressure apparatus, with small-bore pipes next outer walls or in channels, in coils, or round skirting of raised wood floor on which are the seats. A useful and economical method for distributing warmth when pipes are kept above the floors. By all these methods fresh air can be admitted to be warmed before entering the building, but in many cases this has not been done. Hot-water radiators to which fresh air can be admitted by short, smooth, cleanable ducts above the floor, are cleanly and cheap; effective boilers are also quite reasonable in price. There is now, therefore, no good reason for placing pipes in underground cellars or channels, or for allowing the bracing air to be contaminated by passing through long dusty flues. Hot-water pipes or radiators can readily be fixed above the floor and under upper windows and roofs.

Physics of Air in Relation to Ventilation.

Mr. A. Saxon Snell, F.R.I.B.A., read a paper on the above subject, of which the following is an extract:—"The movements of air and its behaviour under varied conditions have been patiently observed and recorded by scientists. As the results of intricate and costly experiments they have discovered definite laws, and expressed them in algebraic and mathematical formulæ of fearsome length and complication. Others (calling themselves "practical" scientists) have invented systems based, more or less, upon those laws. In this way their work, too, is not without value; but too often they are handicapped by a curious blindness to the defects of their systems,



Brixworth Church.



Earl's Barton Church.

which seems to affect those who attempt to encompass things which are, in their nature, elusive. Many of these systems have been evolved as the result of concentration upon one or more of the laws which govern the movement of the air. Under given conditions they may act well, and can be proved by tests to supply air better, or, at any rate, freer from impurities, than that which is so bountifully supplied by nature. But conditions vary, and ordinary people with a passion for fresh air suggest that purity (according to tests) is not the only essential quality in air. The movement of air is affected by so many conditions and circumstances that it is perhaps impossible to design a system of ventilation which will automatically adjust itself at all times and under all circumstances. The most we can do is to provide the means (and they should be as simple as possible) for adjustment to meet all conditions, and to leave those occupying the building to make reasonable use of these means. In public halls, or places where numbers of people congregate at irregular periods and for varying lengths of time, the control of the means of adjustment must necessarily be limited to certain persons, who would be guided by circumstances. The ventilation of the Houses of Parliament, for instance, is under the control of special officers, who must always be on the watch to deal with extraordinary and varying conditions. For those who have to solve comparatively simple problems of ventilation scientific formulæ are likely to prove a snare. The fascination of proof by figures is hardly to be resisted. A general knowledge or understanding of the physics of air is more helpful and instructive. Of course, when we are confronted with abnormal conditions we have to use abnormal means. Abnormal means generally involve machinery and the expenditure of energy other than that supplied by simple and direct natural forces. In a sense all enclosed spaces are abnormal for purposes of ventilation; and such is the fascination of machinery upon some of us that we are inclined to fly to it at once in preference to reliance upon natural forces. The object of this short paper is to draw attention to certain simple laws which govern the movement of the air, and to suggest that the best ventilation is secured by making the fullest use of them. One of the main objects of the Sanitary Institute is to teach people to rely upon natural rather than mechanical conditions. We prefer people to be active and strenuous in life, believing that in that way they will lead a better life. It is easy to suggest all sorts of things for filtering the air, but what we would rather teach them is to prevent the air being made impure, and that can be done by seeing that a building is designed in a proper way, and also by doing away with the smoke nuisance. That is the way we should go, rather than treat the problem by machinery."

Dr. Evans (Swansea) said that they had tried to deal with the question of ventilation in the chapels and churches of Swansea, and inserted a clause in their private Bill of the session. They did not get much encouragement from the Local Government Board, and he (the speaker) was not even asked to give evidence on the clause, which was not allowed.

Mr. S. H. Davies (York), speaking as a chemist, referred to a number of air tests he had made in schools and factories, and said that the testing for carbon-dioxide was the quickest way of telling whether the air was foul or not. Architects, however, had to design buildings not simply from the point of view of ventilation, and where they had a deep room it could not be dealt with by window ventilation. Further, if they trusted to window ventilation, especially in a factory, they were bound to have a very extensive heating area. As they knew, the Staffordshire type of schools was designed for cross-ventilation, but in the central-hall type of schools they generally had to rely on the plenum system. The difficulty was that if a teacher in one of the classrooms opened the windows of the room the system was put out of order. If, however, they stopped the intake and outlet openings of the classrooms in which the windows were opened, the rest of the building would not be interfered with. He pleaded for the co-operation of architects with chemists in the matter of ventilation.

Mr. Saxon Snell said he cordially agreed that the architect and the doctor and the chemist should co-operate in this matter. With regard to a factory of the description referred to by Mr. Davies, he would call that an abnormal building. He was not saying that mechanical ventilation was no good, and he agreed that it was good where the conditions required it. But do what they could with mechanical ventilation, it was not so good or so economical as natural ventilation.

Northumberland Schools.

Mr G. Topham Forrest, Lic.R.I.B.A. (Education Architect, Northumberland County Council), described three Northumberland examples of experimental schools. In the case of the Choppingham School, he said, opened about a month ago, the street or road adjacent to the school site formed what was known as a "barrier" between two collieries of different ownership, so that the school was placed in as treacherous a position as possibly could be chosen. It was customary, he knew, for architects to lay a large raft of reinforced concrete over the whole building area. He was of opinion, however, that this was a wrong form of construction to adopt, and certainly in the case of this school such a treatment would not have materially assisted in minimising the risk of subsidence. Some other means, therefore, had to be adopted, more economical and efficient. From observations and experimental tests carried out, he came to the conclusion that some system of reinforced brickwork would meet the case, as this mode of construction would render the walls monolithic, and make the building infinitely stronger than if built with ordinary walls. Briefly, the system was to reinforce the mortar course with a wire mesh of best quality mild steel wire, galvanised, and having tensional wires running its entire length. The action of the wire mesh when resisting tensional stresses was to reduce the sectional area, and this tended to close the meshes and compress the mortar, so that the latter developed its greatest strength—*i.e.*, resistance to compression. The resistance arrested the tensional stresses in the wire, and was arrested by being held firmly by the bricks above and below it. With the mesh embedded in the mortar joint, the latter became the strength of the wall, and not a filling only, and the continuous bond rendered the wall monolithic. Reinforced brick walls, by reason of their resistance to tensional and lateral stresses, did not require to be of the same thickness as ordinary brick walls, whose strength was only in proportion to their weight. Heavy brick walls were only as strong as their foundations for weight-carrying purposes, and, should the foundations settle unevenly, cracks would appear throughout the building, but by reinforcing the walls with this mesh, 10 ft. or 15 ft. could be taken away from underneath the building, and the walls would still remain intact and span across like a girder. He applied this form of construction to the Choppington School, which was, he believed, the first complete school of its kind in the country. When the plans were in the first place submitted to the Board of Education they would not give their sanction to them. The Board eventually gave their sanction to the plans, and a loan was granted to the Education Committee extending over a period of thirty years. There were two departments, infants and mixed, each being a separate building. The former was built to accommodate 168 children, and the latter 400. It was with regard to the mixed department that the experiment had been tried. The school was built in three sections completely independent of each other, with the foundations and walls reinforced, the foundations on the Hennebique system, and the walls of the superstructure reinforced with wire mesh of best-quality mild steel wire, galvanised, and having tensional wires running its entire length. The school was built with a 9-in. cavity wall in place of the ordinary 14-in., and consisted of a 4½-in. outer wall, 1½-in. cavity wall, and 3-in. brick on edge inside. For the classroom walls he had used a 9-in. cavity wall, consisting of two brick-on-edge walls with a 3-in. cavity between, and the partition walls were 3-in. brick on edge reinforced. The cost of the school worked out at 11*l.* 16s. a school place, which was practically the cost of the better-class schools in Northumberland. When they took into account the fact that building was about 30 per cent. dearer with them than it was in the West Riding, he considered that this school was remarkably cheap, bearing in mind the methods taken to strengthen it. All the walls were built in cement mortar gauged 2 to 1, and every precaution had been taken to ensure the safety of the children. Fire hydrants with long lengths of hose were fitted up inside the building, one in the infants' school and one in the mixed department; and emergency exits were provided, each fitted with panic bolts exactly similar to a theatre. The other two experimental buildings he intended referring to come under the head of the cheaper schools movement, and were both interesting examples. The first example was the new school at Barrington Colliery, about sixteen miles from Newcastle-on-Tyne. The school was constructed of wood on brick foundations. The brick foundations were reinforced in two alternate courses with three rows of best galvanised mild steel wire mesh, similar to that used in the Choppington school. This mesh was in 2½-in. widths laid longitudinally along the total lengths of brickwork. The wood superstructure was securely fastened down by wrought-iron bolts and plates embedded in the foundations. The outside framing was formed with 4-in. by 3-in. posts, covered with a layer of felt and 1-in. G and T boarding fixed horizontally on the outside, and on the inside matchboarding covered with asbestos sheeting to form a dado. Above this dado the asbestos sheeting was fixed on to the 4-in. by 3-in. posts. The corner posts to the building are 4 in. by 4 in. The floors throughout were of wood joists and boarding supported on sleeper walls. The ceilings were formed with asbestos sheets, and the roofs were covered with Eternit slates laid on spars covered in the first instance with felt. This school worked out at 6*l.* 10s. a school place. For colliery districts where the life of the colliery is uncertain he would strongly recommend a school of this description.

The other experimental building was the new school erected in the village of Hartley, on the east coast of Northumberland, about ten miles from Newcastle-on-Tyne. The school is a timber-framed building with slab casing, ferro-concrete foundations, reinforced with ¾-in. steel rods and expanded metal; 4½-in. by 3-in. framing fixed to foundation, with holding-down bolts at angles and about 8 ft. apart around the building, angle posts of 2 in. by 4 in. framed to horizontal timbers fixed to all external angles, doorways, etc., ordinary framing 4½ in. by 3 in.. with 4½-in. by 2-in. alternate studdings; 9-in. by 3-in. glazed ware air-gratings fixed at base of all framing, and holes bored through timbers for circulation of air throughout the whole of the framing. Bituminous damp-course was fixed below sole piece of framing; 2-in. "Fram" slabs fixed to framing on outside, rendered over surface with cement mortar floated to an even surface, and rough-cast with mixture of slag and pea gravel; 1-in. internal "Fram" slabs nailed to framing, floated and skimmed with washed hair lime and putty, and finished with putty and plaster throughout. A 3-ft. 6-in. dado was formed with Portland cement back and finished with Keene's cement, face trowelled and smooth. The roofs were boarded with clean redwood grooved and tongued boarding, and slated with asbestos tiles laid diagonally and fixed with copper rivets. The cost of the school worked out at about 5½d. per foot cube for the building alone, but the fact must be taken into consideration that the building internally was finished exactly similar to one of brick or stone, and that, owing to the exigencies of this site and bad drainage arrangements, it was found necessary to instal an accelerated hot-water installation, and other extras were also incurred. Provided a school of this description was built on a suitable site, it should be possible to erect a building which would work out at 5d. per foot cube, or even under that figure. The school was designed to accommodate 300 scholars, and the price per head works out at 6*l.* 16s. 6d., but to this price must be added 525*l.*, being the cost of out-offices and boundary walling, which were of brick and stone, similar to a permanent building, and also the tar macadam playgrounds and drainage.

(Our report will be concluded next week.)

THE SUMMER SCHOOL OF TOWN PLANNING AT HAMPSTEAD GARDEN SUBURB.

THE first week's session of the Summer School of Town Planning, which we referred to last week, was attended by a good number of keen students and visitors, but not, we think, as many as the great interest of the subject and the names of the lecturers upon its several aspects might have been expected to attract. Two and sometimes three lectures were given each morning in the lecture-hall of the Institute building, which shares with Mr. Lutyens' two churches the small plateau dominating what is fast becoming that phenomenon, hitherto strange to London, a consistently beautiful suburb—consistent, that is, in itself and with the rural part of its surroundings. Already some of its nooks and byways are acquiring the softened charm of old-time villages we know, with something added which, perchance, is of the new time to be. To the end of the week Mr. Ewart G. Culpin had lectured on Examples of Garden City Estates, Mr. Henry Vivian, J.P., on the financial aspect, and Dr. R.A. Lyster, M.D. (Public Health Officer to the Hampshire County Council), on the public health aspect. Engineering and surveying problems had been dealt with by Mr. W. R. Davidge, F.R.I.B.A., F.S.I., A.M.Inst.C.E., and Mr. G. L. Pepler, F.S.I., the first from the municipal surveyor's and the latter from the estate developer's point of view; and interlacing and uniting all these Mr. Raymond Unwin had given the first half of his series on the general practice of town planning.

As we listened to these practical enthusiasts one after the other, each dealing clearly and definitely with his own department, yet with inevitable overlappings and repetitions, a stronger sense of the unity of the subject grew upon us. Its many aspects, problems, and functions group themselves under the three broad headings of Health, Convenience, and Amenity; and these again interchangeably express a perfect wholeness, a balance of parts, and the fitness which finds its fine completion and fulfilment in that beauty which is the aim of the architect.

The growing public interest in the movement is qualified by a certain shyness, the result of suspicion that it is more costly than the present system of development. This criticism and suspicion must be met; and this is the object of Mr. Vivian's paper.

He contrasts the town-planning and by-law systems, in that while the first devotes a greater area to the houses with a less number on the acre, but a less area to roads, and at least 10 per cent. to open spaces, the second devotes nothing to open spaces, save in the roads and house plots, but a greater area to roads, and allows a much greater number of houses per acre. Informed public opinion admits that a more generous treatment should be given in these three matters. This means taking more land, and that costs more money. The limitation of the number of houses on the acre means that less can be given for the land. On the other hand, it means quicker and steadier development; a greater area of land is taken up in a given time than by the old piecemeal method, and by its superior method of development greater security is afforded to adjoining areas. So that it is doubtful if even the private interest of the landowner would suffer much as a rule, as against the method of keeping the land idle for the higher price. There are not the same chances for the speculators and gamblers in land values, but that is a public benefit, and public opinion recognises that land must not, any more than machinery, be exploited for gain to the risk of the health of the community.

But economies are possible in other directions to meet the added expense of more generous use of land.

Town-planners claim that greater elasticity should be possible in roadmaking. While ample widths should be provided for main highways and traffic roads, and even then rules made to prevent building right up to them, much narrower residential roads might be allowed, and only so much actually paved as adequate for present purposes. It is difficult to estimate exactly the amount of saving thus effected, though certainly considerable. The question arises whether the local authority should take the risk of future expenditure involved. On the whole, their risk is not great in making the concessions asked, and in return a number of advantages are gained, such as a lower number of houses on given area, consequently improved health of locality, smaller number of empties, and so less loss of rates.

In this connexion Mr. Unwin in one of his lectures gives figures which we only allude to shortly, as we understand they are to be made available to all interested in a pamphlet. He shows, *inter alia*, how reducing the number of houses per acre gross from 25·2 to 10·6 increases size of plot from 98 yds. super. to 398 yds. super., only raises total cost of land and roads from 43*l.* 8s. 6d. to 51*l.* 13s. 7d. and ground rent per week from 8d. to 9½d. per house, and reduces price per yard of plot from 8s. 10¼d. to 2s. 7d. Land in each case is taken at 300*l.* per acre.

In another lecture Mr. Unwin takes the cost of the smallest decent cottage, including land, roads, fences, fees, etc., complete, at a minimum of 180*l.* He shows that ½ per cent. in the interest on that amount represents 18*l.* if capitalised—*i.e.*, the cost of a bedroom—and is more help than doubling the number of houses on the acre.

We agree with Mr. Vivian that thousands of pounds in ground rent are probably lost to landowners by lack of imagination and far-sighted policy. He applies a dictum of Lord Morley's—that the curse of modern industrialism is its insecurity—to the common method of development, pointing out how town-planning methods increase security both for landowner, developer, and investor. He also speaks of the necessity of considering large-scale balance-sheets in this matter, not for the first twelve months only, but over a long term of years; and in that case he thinks wise town planning is not likely to be more expensive than present methods. The present loss to the community must also be taken into the account, through inconvenience and loss of vitality caused by congestion of traffic and overcrowding, and the cost of constant necessary improvements. A more give-and-take basis of contract is required between the landowner and the estate developer of the one part and the local authority of the other; and, we would add, a better and more fully informed understanding between the latter and the public who appoint them, and whose interest it is their office to serve.

Mr. Pepler, in two comprehensive lectures, dealt with the engineer's and surveyor's problems, difficulties, and pitfalls from the point of view of the estate developer, acting, not in competition, but, so far as may be, in co-operation with the public authority. He illustrated his lecture by reference to plans of schemes in his own practice.

First of all, three main factors. means and possibilities as to water supply, sewage disposal, and access, have to be considered; the possibility or difficulties of connecting up with existing systems. Then the contour survey of the whole district dealt with must be made, and plan or model prepared. At a very early stage it is necessary to decide whether the delay and cost of preparing a scheme under the Act may be forgone; or whether, in view of nature of proposed development, or of stringency or peculiarity of by-laws, this must be incurred. If the latter, it is well to get the local authority interested at once, and to adopt the scheme to avoid still further cost and delay. Mr. Pepler thinks the authority will probably not town-plan in detail, but, while laying down main highways and traffic roads, and ear-marking areas for the larger open spaces for a long period ahead, will, under clear regulations, leave the filling-in to the changing ideas of successive periods. This, we take it, is a general rule applying to all cases, not to detail more than is to be dealt with at once. It certainly does not come within the province of the local authority except in special cases.

Mr. Pepler went, in some detail, into different systems of water supply and sewage disposal in the case of these having to be provided by the developer. These matters affect lay-out and parts to be developed first. The public prejudice against the private sewage scheme is a practical consideration, and also the position of the works. As regards water, the position of wells, and porous or impervious nature of top strata affect the proximity of buildings and start of development. It may also be requisite to provide for lighting, as at Cuffley, where an air gas plant will be installed, which can be placed among the houses and be added to as required.

Main traffic roads are fundamental and must be wide enough with eye to the future, and straight and short as may be, to attract the traffic. Residential roads should be laid down so as to give practicable building blocks and plots according to class of houses in the different parts of area. Aspect is not so important for large plots as for small; nor gradients in the residential as in traffic roads. For the latter 1 in 30 is about the maximum, for the former 1 in 10. As a general rule roads should follow contours, but be variable by other considerations. Factory area should be accessible to main roads, canals if any, and railways; but it is not safe to assume sidings.

Mr. Pepler also spoke of widths and construction of roads, grass margins, tree planting, access to station and shopping centres, and also of the preservation of all natural amenities.

We can only touch upon few of the many points treated by Mr. Unwin. In the matter of roads he said that lack of other control over open spaces was the most valid excuse for the inelastic minimum width insisted upon in by-laws. With the greater control given by town-planning powers, roads may be varied according to purpose; economies practised where merely approaches to dwellings, and greater widths and stronger construction demanded in proportion to actual traffic and probable development. This, too, will add to the variety and amenity of neighbourhoods.

Mr. Unwin specified seven different types:—1. The footpath to groups of houses, 8 ft. to 10 ft. wide, open to road one end and 150 ft. long. 2. The 20-ft. road, with 13-ft. carriageway, 500 ft. long if open one end, 750 ft. if both ends, with turning places. 3. The 30-ft. non-traffic road, 16-ft. carriage-way, 4-ft. footways, up to half-mile long, with turning places. 4. The 42-ft. traffic road. 5. The 50-ft. through traffic road with trams. 6. The 80-ft. ditto with six lines of traffic, 3-ft. margins to centre tramways, and 12-ft. footways. 7. Up to 100 ft. or 120 ft. wide. An important point is that tramways should be in centre, with at least narrow footways on both sides.

After illustrating the many forms of Continental main roads, with varied combinations of fast and slow traffic ways, tramways, bridle-tracks, footpaths, grass and tree-planted margins and avenues, Mr. Unwin spoke of certain American developments such as leaving forecourts of houses open to road, and treating them as ornamental grass plot or shrubbery. This is well shown at Rochester, U.S.A., as well as other ornamental road treatments, but we doubt whether, for several reasons, this kind of thing is applicable to any extent in this country as yet.

Illustrating his remarks by a cross-section, Mr. Unwin made clear the awkwardness and waste of the 36-ft. or 40-ft. by-law road with houses on both sides cut along a hillside with steep cross-gradient. By substituting two roads 13 ft. to 16 ft. wide with houses on one side only, about 6*l.* per house is added for road-making, but from 30*l.* to 35*l.* is saved upon building each house, so that both economically, practically, and æsthetically the advantage of this development is apparent.

The æsthetic treatment of the straight road was dealt with, the monotony of its lines and blurring of features by sharp perspective being improved by breaks and set-backs in the building line and features at the cross-roads, presenting surface square to the vision, by clumps of foliage and adequate terminal features. The inherent advantages of the straight street were noticed in spreading the influence of public buildings or distant view, and also the changing picture of the curved road. All these points were illustrated upon the screen and in a walk through the suburb.

Going on to speak of road junctions, Mr. Unwin referred to the difference of German and French ideas, the first holding it best for roads to enter singly, the latter preferring to concentrate junctions in one place. Showing views of several open places in Paris, and M. Hénard's diagram of circulating traffic, he said that where there is much traffic this was the best system, provided that the width of road is sufficient to take the necessary lines of traffic, and sufficiently wide apart to get through. There is less stoppage by this than by the ordinary holding-up method. Yet it is doubtful whether the human element does not outweigh all theorising about collision points, etc., which may easily be carried too far.

Slightly breaking the line of road at crossings, with or without the formation of little places, closing the vista to one or more of the roads,

causes no inconvenience to the traffic, but may be even an advantage by easing the corners. There is much to be learned from the study of mediæval cities, with their irregular streets and places, in the way of securing good grouping, frame, and enclosure. The irregularity was probably more or less consciously planned for the artistic effects revealed. But it is possible to get the same kind of effects with similar places and crossings more formally laid out.

Referring to the importance of different forms of place for civic or subsidiary centres, Mr. Unwin alluded to the grandeur of the open public life in Greek cities, which continued, in agora, forum, market-place, etc., till well into the Middle Ages. And as town life became less social, and public spirit the exception rather than the rule, so also have these public town places with their closed street pictures degenerated or disappeared.

Mr. Unwin went on to speak of the development of the civic centre in American cities, and in a former lecture he made special reference to their great development of the children's playground, especially in Chicago. Here they have some thirty or forty, the aim being to have a playground from 1 acre to 2 acres or more in extent within half a mile of the dwelling-place of every child. These playgrounds are equipped with implements for play, sand courts, wading pools, and field house, and are supervised by caretaker or games master or mistress. Much voluntary work is given by adults, and an interesting and unlooked-for result is that the grown-ups, following the children in search of recreation, are bringing their clubs, institutes, and unions round these play places, which are thus becoming foci of social life and promise to develop into important civic centres.

Mr. Unwin referred to the many other forms of open spaces, and noted that in setting these out on the town plan their special purposes should be defined from the first. To avoid waste of frontage, those likely to be more or less untidy, such as allotments or the ordinary type of playground, can be kept in the backlands, or the centre space of large or awkwardly formed blocks. Those intended for bowls, tennis, or purely ornamental or recreational purposes may be more or less open to the road, and variously treated with regard to the grouping of the houses.

One of his lectures was wholly devoted by Mr. Unwin to the civic survey. First he detailed the matters which must be ascertained or settled before starting to lay out a site as village or suburb. These are :—(1) The kind of people who will live in it, and the distance from main centre of industry. (2) Means of transit and access. (3) Class or classes of employees, weekly wages earned, rents they can pay. (4) Most useful and most remunerative houses to build—not necessarily the same. (5) What proportion of each class and total number. (6) What buildings, other than houses, are necessary to be built; allocate sites. (7) What provision made for parks and open spaces, and what more required; considered also, as an attraction from point of view of revenue. (8) Whether through main road or connecting roads required. (9) Preliminary estimate before making plan. What ground-rent required to give adequate return for development.

But in town extension planning on the large scale, the survey is a much bigger matter. The town-planner, like the architect, must study his clients, must know the town in every aspect of its three factors of place, work, and folk, as Professor Geddes puts it; to whose wide knowledge and high authority in this matter Mr. Unwin referred. This knowledge must be collected and compared for the town-planner in many different departments, and presented to him in graphic form. Such particulars as direction and force of winds, amount and days of rainfall, amount and movements of traffic, the density, changes, and movements of population, and very much else can be graphically shown on diagrams and maps. Much is done already in this way, but much more is needed. With regard to London, after what has been done, and been recommended to be done, in the matter of new main roads we are still in the absurd position that there is no one with any power to see the recommendations carried out. There are three Government offices, there is the London County Council, and eighty local authorities, all with powers as to the traffic or town planning. But things still continue to muddle along for want of a co-ordinating authority for the whole. We shall return to Mr. Unwin's lectures later.

Dr. R. A. Lyster, M.D., B.Sc., D.B.H., Medical Officer to Hampshire County Council, said town planning was based upon the reasonable demand that everyone should have the chance of living in decent and wholesome conditions. Such minimum conditions are air space and ventilation, warmth, light, cleanliness, water supply, sanitation, dryness, and these have to be attained at reasonable cost, or the deficiency of houses causes high rents and overcrowding, and therefore either the numbers must be increased by grants in aid or wages raised to enable high cost to be met.

Landowners have been allowed to develop their land independently, and the result has been irregular development and overcrowding.

Housing and town-planning powers have been given to the wrong authorities; they should only be given to large county boroughs and county councils. Public health progress has been very uneven; factory conditions are far behind housing, hindered by the powerful vested interests involved; owners of small house property are usually poor. Factory inspection should be carried out under local supervision.

Bad housing conditions lower the vitality of the people, but no disease can be proved to be due to that cause. It is, for instance, one of many factors causing consumption; but housing reform and town planning will not alone stamp it out. It is necessary to go beyond the first steps in the investigation of these matters. One of the commonest causes of consumption is infected milk, and here again a strong vested interest makes it difficult to deal with tuberculosis in cows.

General infectious diseases probably do not attack slums more commonly than better-class houses, but, once broken out, spread far worse there.

Typhoid-fever has an affinity for dirty, insanitary, and overcrowded houses, but good water supply is driving it out. Bad drains never cause typhoid and diphtheria, but predispose thereto by lowered vitality. The lowering of infant mortality is essentially a matter of better food.

Dr. Lyster advises not to base arguments for housing and town planning upon statistical evidence now available. Unless properly "corrected," it may be quite misleading, as it is certainly quite unnecessary.

The movement aims at placing people on a higher plane of living than is possible for the majority at present.

We hope to commence our next article with notes on the lectures dealing with the problem from the points of view of the other municipal officers.

GENERAL NEWS.

Professional Announcement.

Mr. J. T. Blackwell, architect, 53, High-street, Kettering, has taken into partnership Mr. Charles Riddey, A.R.I.B.A., who has had some years' experience in the profession. The practice will be carried on at the above address, as heretofore, under the style of "Blackwell & Riddey."

Manchester School of Architecture.

Under the auspices of the University and the Education Committee applications were invited recently for a Professor of Architecture, the vacancy being occasioned by the resignation of Professor Capper, owing to ill-health. The appointment has been given to Mr. A. C. Dickie, A.R.I.B.A., of London.

Visit of German Town-Planners.

The visit of Continental town-planners to England from August 18 to August 29 promises to be an event of some interest. The visitors will number over 150, and the chief objective will be the inspection of the various Garden City and Suburb schemes in the country, which are now being copied in various parts of Germany. The arrangements are being made by Mr. Ewart G. Culpin, Secretary of the Garden Cities and Town-Planning Association, 3, Gray's Inn-place, W.C., who will be glad to give the opportunity to any English town-planners desirous of meeting the visitors. During their stay in England the headquarters of the party will be the Grafton Hotel, Tottenham Court-road, London, W.

Gresham College.

The plans and designs for the rebuilding of Gresham College, upon the site at the corner of Basinghall and Gresham streets, have been prepared jointly by Mr. Sydney Perks, City Surveyor, and Mr. D. Watney, surveyor to the Mercers' Company. The premises will comprise a lecture-hall, measuring 68 ft. by 40 ft., and having sitting-room for an audience of 500 persons, with offices above for the professors and executive staff.

The Princess's Theatre, Oxford-street.

We learn that the site of the Princess's Theatre is soon to be cleared for the erection, at a cost of some 600,000*l*., of an hotel to accommodate 1,000 visitors. The theatre, which has been untenanted for several years, was built in 1880, after designs of C. J. Phipps, with 2,150 seats in the auditorium. Phipps's plans comprised a stage and wings 71 ft. by 42 ft.; pit, gallery, and royal box doors in Winsley and Castle streets, and foyer, with a balcony over the principal entrance—a very uncommon feature in that day of a London playhouse. The ground (nearly 21,500 ft. super.) is held under a lease, to expire in July, 1940, from the Howard de Walden Estate, at a rent of 1,600*l*. per annum. The site is that of the Queen's Bazaar, which, after a fire in 1829, was rebuilt for the "Physiorama" and similar exhibitions. The house was then taken by Hamlet, the wealthy silversmith of Cranbourne-street, for whom Nelson and Crace remodelled and decorated the interior, and was reopened on the night of October 6, 1840, for English opera and the then novelty of promenade concerts.

College Gateway, Worcester.

Conjointly with Mr. W. H. St. John Hope, Mr. R. F. Wells designed and executed in terra-cotta a set of eleven figures which have just been set up in the niches of the outer side of the Edgar Tower, or College Gateway. The statues are illustrative of the story of the see from its foundation by Ethelred, with Bosel as first bishop, 679, to the close of the XIth century, when the conventual church of St. Mary supplanted St. Peter's as the cathedral of the diocese.

Removal of Two Long-Established London Firms.

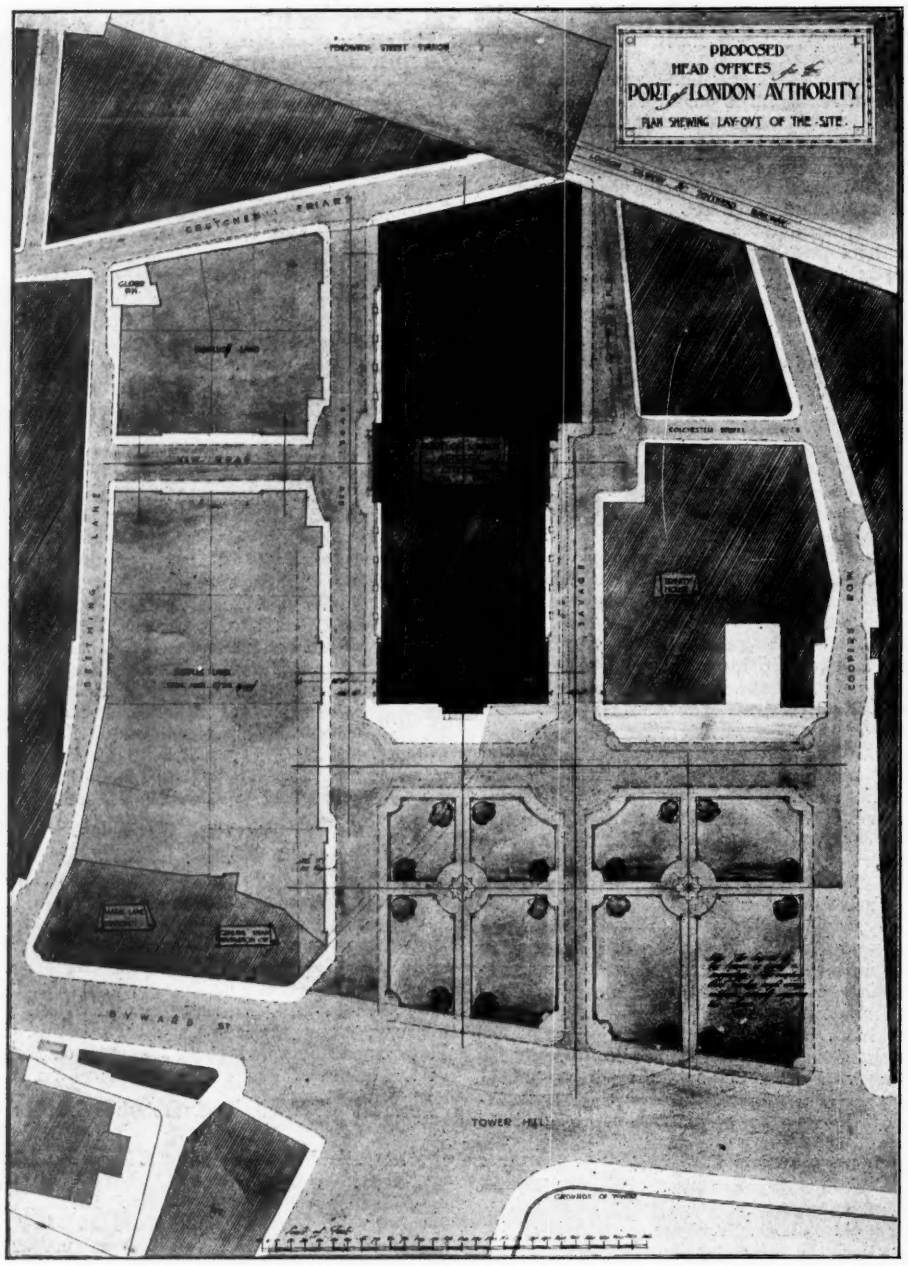
Messrs. Arthur Ackermann & Sons have just migrated from Regent-street, where they have continued since 1825, to No. 157A, New Bond-street, formerly the Mendoza Gallery. The firm was founded in 1783 in premises, formerly those of Lillie, snuff and perfume dealer, at No. 96, in the Strand, at the corner east of Beaufort-buildings (Savoy-court), by Rudolph Ackermann, who introduced into this country the illustration of books, mainly upon topographical subjects, with aqua-tints, lithographs, and similar coloured plates.—Messrs. Newton & Co., makers of optical, mathematical, electrical, and scientifical instruments, who claim to be the oldest established firm of optical instrument-makers in the world, have removed from No. 3, Fleet-street, near Middle Temple Gate, to No. 72, Wigmore-street, W.; they have also opened a branch establishment at No. 37, King-street, Covent Garden. The firm, now consisting of Mr. H. C. Newton and Mr. R. S. Wright, were founded by a cousin of Sir Isaac Newton in 1704, and possess a business receipt dated in that year. They have occupied premises in Fleet-street during more than 200 years past.

An Ancient Theatre in Paris.

Madame Caristie-Martel, of the Comédie-Française, and granddaughter of the architect Auguste Caristie, who excavated the Roman amphitheatre in Orange, has begun a similar work in respect of the Arènes de Lutèce, in the Quartier Latin, where many old and decayed dwellings have been cleared away. A large stage is fitted in the middle of the ancient Roman amphitheatre, and room is provided for about 2,500 spectators upon the original tiers of the auditorium. Madame Caristie-Martel intends to give a series of classic spectacles, contests, and games in the revived Arènes.

BOOK RECEIVED.

MODERN ROAD CONSTRUCTION. By Francis Wood, M.Inst.C.E., F.G.S. Illustrated. (London: Charles Griffin & Co., Ltd., Strand. 4s. 6d. net.)



Port of London Offices: Block Plan. Competitive Design by Mr. J. Reginald Truelove, A.R.I.B.A.

ILLUSTRATIONS.

Port of London Offices.

MR. J. REGINALD TRUELOVE was one of the six competitors selected to complete their designs for the new Head Offices of the Port of London Authority. In connexion with his scheme, illustrated in this issue, Mr. Truelove writes:—

"In the first scheme the tower was placed in Savage-gardens-square, where the post-office now is placed. It closed the vista of a new roadway across Trinity-square and through Savage-gardens. The tower was in the nature of a campanile, and, as the ground slopes gradually from Savage-gardens-square to the grounds of the tower, an uninterrupted view of the tower, right to its base, was obtained from 540 ft. away. The tower was practically on the central axis of the square. It would have emphasised the real centre line of the square, and so made an orderly lay-out. When Trinity House is rebuilt—as it must be some day sooner or later—then the tower would have risen from the centre of a great group of maritime offices. However, in obedience to one of the clauses in the final conditions the tower had to be moved, but for accommodation purposes the area had to be retained. This explains the irregularity of the Savage-gardens frontage. Even then the block over the post-office would make a good feature at the end of the street.

One of the principal features of the design is the lay-out of the surplus land, which, as calculated, would return a considerable proportion of the original outlay, which, it is understood, is somewhere near a million pounds.

The through road runs direct from Tower Hill to the neighbourhood of Fenchurch-street Station, the surplus land frontages face the main façade of the Port Authority's Office. The land so arranged would have commanded a very high rental. The figures are 290 ft. in the main road, facing the Port Authority Offices, and 170 ft. facing Trinity-square, to say nothing of the uninterrupted frontage towards Seething-lane, and the smaller new road terminated by the Port Authority Office centre pavilion.

The planning of the offices was conceived on the simplest and most direct lines, and it is maintained that here the public would find its way to any individual office in the building without the help of officials on point duty."

The Liverpool Repertory Theatre.

THIS theatre, converted out of the old Star Music Hall into a municipal theatre, is run on the lines of the Repertory Theatre, Glasgow, and Miss Horniman's Theatre, Manchester.

It is owned by over 1,000 shareholders, and the dividends are limited to 6 per cent. The essential requirements were provision for social intercourse, a good stage, and comfortable seating throughout.

The stage of the old Star Theatre being only 21 ft. in depth, property was acquired in the rear, and everything behind the proscenium arch was rebuilt. The auditorium was re-decorated and reseated and tiers of boxes on either side were removed, and single boxes introduced in their stead. Under the auditorium there is provided a large foyer, a feature of the theatre, approached by wide staircases not only from the stalls and pit, but also from the circle.

This foyer, originally a beer-cellar, has now, by excavating, been converted into a place of public assembly, where the audience may congregate from all parts of the house. Behind the foyer is the refreshment-room and bar, and off lobbies approaching it are ample cloak-rooms.

The stage, which has been enlarged to 28 ft. in depth, has been provided with the best modern stage equipment, and behind it is the green-room.

Over the green-room is a painting-room, and under it a carpenter's shop, so that all the scenery may be produced on the spot. Behind the stage have also been provided eight new dressing-rooms in addition to five already existing over the wings, also rooms for the comptroller, stage-manager, electrician, etc.

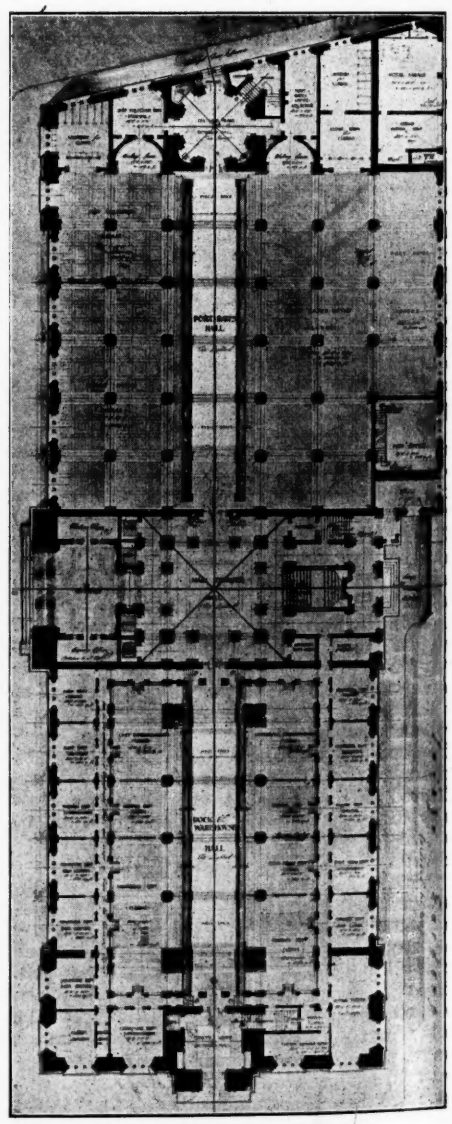
The decoration is based on the late XIXth-century work of France, simplicity in composition being realised by taking the proscenium arch up to the full extent of the proscenium wall, and by treating the boxes as rich balconied openings in a plain wall.

The foyer, where less restraint is demanded, recalls as the basis of its design the portico for a Roman villa and the traillage of a Roman garden.

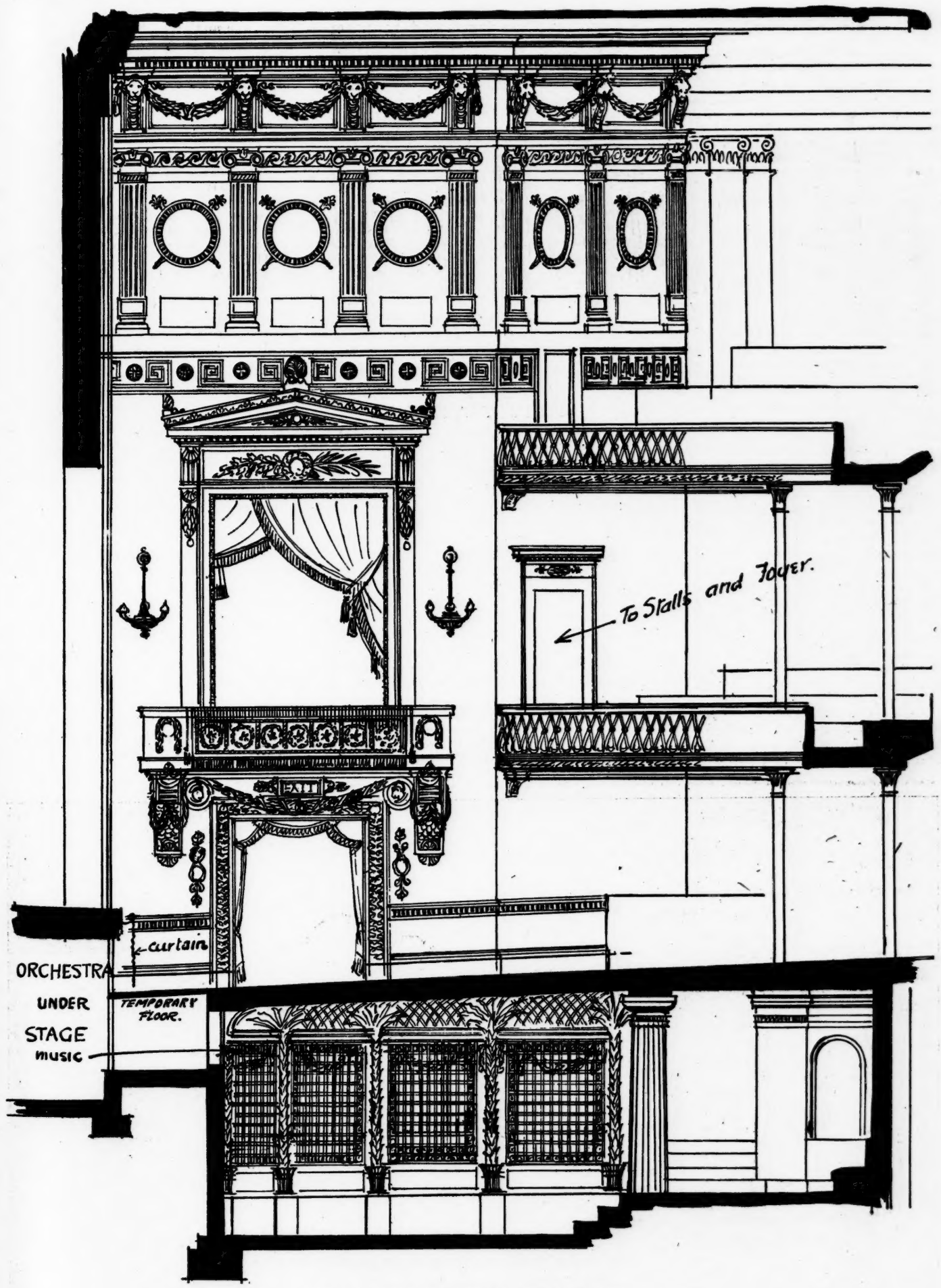
The general contractors were Messrs. Morrison, who completed the whole of the work in ten weeks, this being the contract time. The plasterwork was executed by Messrs. Tanner & Son, and the work is especially to be commended for its spirit and refinement. The painting and decorating was done by Messrs. Jelly, the curtains by Messrs. Shoolbred, the electric fittings by Mr. Banks, the wiring by Messrs. John Hunter, and the heating by Messrs. Killick & Cochrane.

Baroque Architecture.

THE illustrations of work by Michelangelo and Palladio are used in connexion with the article, the first of a series, which begins on p. 206, and to which we refer in our "Note" on p. 197.



Port of London Offices: Ground Plan. Competitive Design by Mr. J. Reginald Truelove, A.R.I.B.A.



The Repertory Theatre, Liverpool: Section.

Professor S. D. Adshead, F.R.I.B.A., Architect.

COMPETITION NEWS.

A list of current Competitions is printed on page 216.

Model Colliery Village.

In May the Welsh Navigation Steam Coal Company, Ltd., promoted a competition for schemes for a model colliery village in the Ely Valley, between Llantrisant and Tonyrefail. The conditions of the competition were not acceptable to many who might otherwise have entered, but the response, we believe, was good. The First Premiated Design (20*l.*) was won by Mr. Ed. W. Meredith, 52, Greystones-road, Ecclesall, Sheffield.

Magazins Modernes, Strasbourg.

Illustrations are given in *L'Architecture* for August 3 of M. A. Marcel's design which obtained one of the two first prizes in this important competition promoted by the Société Française des Grands Bazars at Strasbourg Among the jury of assessors were M. Pascal and M. Laloux, members of the Institute of France. As an example of shop architecture on the grand scale this design is worthy of study. M. Marcel's equal in the competition was Professor Oberbaurat, of Carlsruhe. The second prize was won by Messrs. Muller & Mosseler, of Strasbourg; the third prize by M. Chaussemiche, of Paris; and the fourth prize by Messrs. Berninger & Kraft, of Strasbourg.

CORRESPONDENCE.

Public Appreciation of Architecture.

SIR,—The subject of the leading article in the *Builder* of August 9 is one of considerable importance. Some real appreciation of architecture by the public is a condition so much to be desired that it is strange more effort is not put forth to bring it about. The present time finds us with interest somewhat generally awakened in the subjects of town planning, garden cities (so-called), and—in our Metropolis, at least—in the newly-formed London Society. This is something to the good, and such a time seems opportune for driving home the important bearing on all these things of a general elevation in the standard of public taste.

Possibly no truth is more emphatically borne out by a study of the history of æsthetics than that the condition of the arts, at all times, has followed—more or less correctly—the general state of public taste. If the arts advanced—as in the heyday of Florentine culture, for example—it was because the people valued and encouraged them; if they declined—as in the decadent period of Rome—it was because the public were consumed with other interests or pleasures, and the general taste had become lowered. A review of the course of the Italian Renaissance indicates this application of the law of cause and effect very obviously, and it is apparent, too, in the corresponding period of our own history. Even the layman and the worker of those times thought and spoke with appreciation of Vitruvius, Alberti, Vignola, and Palladio—or rather what they represented to them; but we never hear them mentioned now. The fact is important only as indicating a vital change of view, and we ourselves cannot be acquitted of indifference to the example of the great architects of the past and the standard of refinement and taste set up by them.

Among the hopeful signs of the setting in of a change we may note: The encouragement now being given to art teaching in some of our Universities; the broadening treatment of architectural education generally (as in the case of the Royal Institute); the training of craftsmen in æsthetics as well as in the practical aspects of their work; and, incredible as it may seem, some glimmerings in our daily newspapers of the truth that the amenities of towns and cities, and art in what we might call its universal or everyday aspect, are matters of concern for all citizens, irrespective of class or education, and not merely of the select and cultivated few. We shall have gained considerably if the truth of this comes to be generally admitted. The subject, to quote from your leader, is "of vital concern to architects; and none should be so qualified as they to inform and lead public opinion." On this account one is tempted to suggest the opening of a conference by the Royal Institute and the allied architectural societies of the United Kingdom in an endeavour to influence public opinion in the right direction. To do so would appear a vast undertaking, but it need not prove so, and someone must make a beginning. It is, anyway, perfectly certain that art, in its comprehensive sense, will make no very real progress until some general public appreciation—such as you indicate is desirable—is effected.

FREDK. R. HIORNS.

FIFTY YEARS AGO.

From the *Builder* of August 16, 1862.

Road-Making.

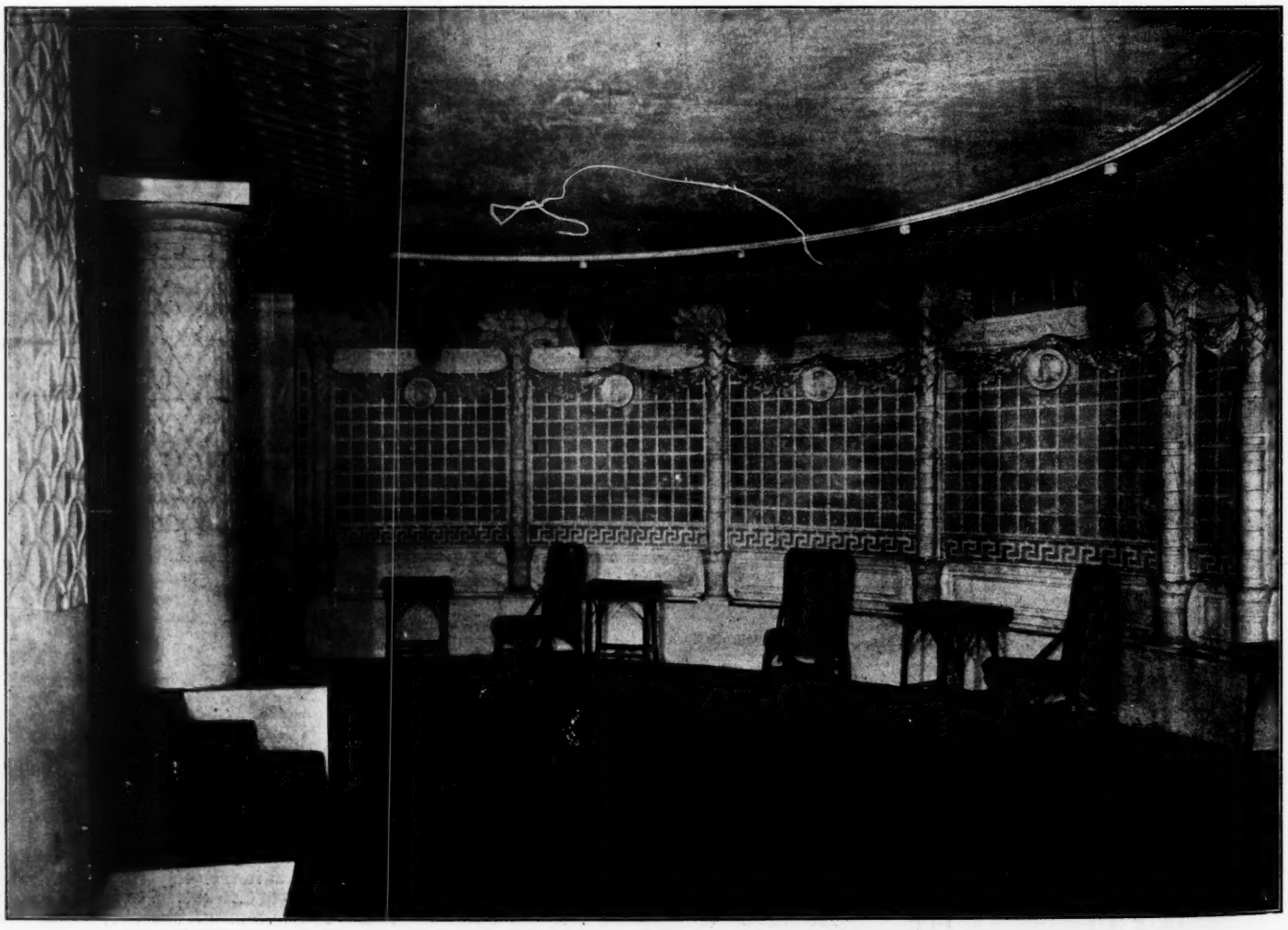
A FRENCH inventor has recently built, or at least designed, a steam-roller to consolidate gravel and macadamised roads. The *Mechanics' Magazine* says:—A pair of cylinders, inclined at forty-five degrees, act on an outside crank on one end of the axle of the main roller or drum. The front axle has wheels as broad as can be, and is controlled by steering-gear similar to that used on steam-carriages and traction-engines. It is said that this machine will be better than horse-drawn rollers, because it can run both backwards and forwards with equal facility, be easily reversed, and work on a short piece of road until it is sufficiently consolidated.

*** It is not, indeed, such a long while since some 3 in. of metalling was raked over the road and left to the action of the weather and the wheels of passing vehicles to reduce to a smooth and resisting surface. The drivers of horse-drawn vehicles, anxious though they were to follow closely in the tracks of each other, overlapped little by little until, at the end of some weeks, the rolling-in process was more or less accomplished.

The steam-roller, when it did make its appearance in this country, was so rare for a long time as to be an object of curiosity. It is such an everyday occurrence now to come across a road under repair forewarned by the familiar notice "beware of the steam-roller," that, beyond causing annoyance, it is scarcely remarked. To-day, for example, one engineering firm alone, as we chance to know, stocks as many as 200 steam-rollers for purposes of hire. When the idea had once taken shape, there were not many advances in the type of construction to be made. The scarifier, however, is a notable addition, fixed either in front of the engine or dragged as a trailer, its purpose being to pick up the surface of the road before metalling. Driving power has naturally improved in common with other types of steam-engine which are now constructed on the compound principle, *i.e.*, the exhaust steam from the high-pressure cylinder being utilised for the low-pressure. A scarifier at work has a certain fascination to watch, and the rapidity with which the surface can be picked up and the saving of manual labour impresses the most casual passer-by. Motor traffic may be good at tearing up road surfaces, but it is not good at rolling them down, and the steam-roller and scarifier are indispensable in these days of rubber wheels.—ED.

THE SINGLE TAX.

A letter on this subject, from Mr. William F. Wallis, of Maidstone, is unavoidably held over until next week.



The Repertory Theatre, Liverpool. (*See page* 202.)

Professor S. D. Adshead, F.R.I.B.A., Architect.

MONTHLY HISTORICAL REVIEW.

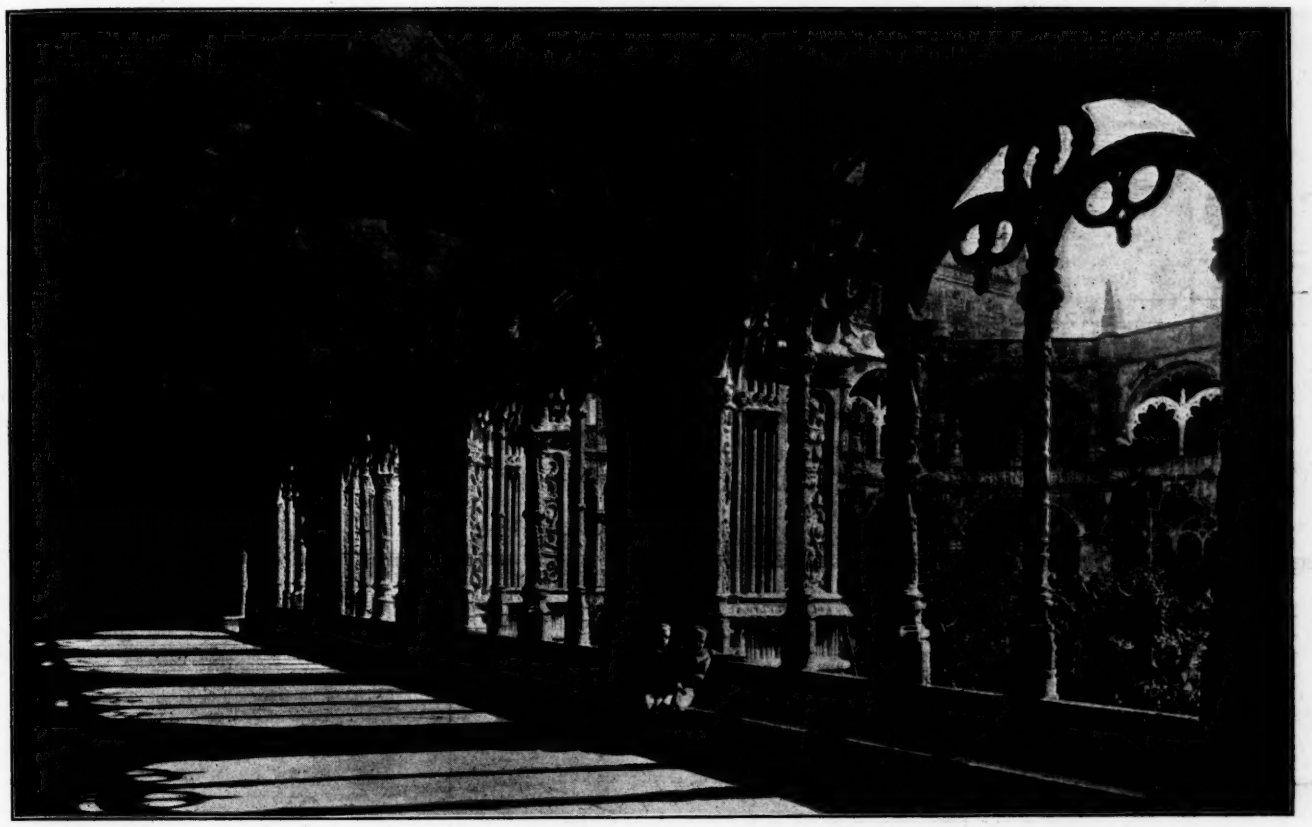


Fig. 1. Convent of Belem: The Cloisters.

THE ARCHITECTURE OF PORTUGAL.—VI.

(Continued from page 80.)

THE examples of Portugal's characteristic style best known to foreigners are the buildings at Belem, some 3 miles down stream from the centre of Lisbon. They consist of the tower of São Vicente and the Hospital of the Jeronymites, which stand about a quarter of a mile apart. The former is the only survivor of several forts begun by John II. (1481–93) to guard the river approach to his capital, and finished by his successor in 1520. The fort, which was once separated from the mainland by an arm of the Tagus, now silted up, was designed by Garcia de Resende of Evora. It consists of a tower some 40 ft. square and 100 ft. high, with a fortified bastion of irregular plan projecting from it into the river, and surrounded by a wall enclosing an arcaded cloister (Fig. 2). The most noticeable features externally are the circular turrets corbelled out from each angle of both tower and bastion, and crowned by melon-shaped stone roofs with knobbed finials, the machicolated parapets whose crenels are formed into the shape of shields bearing the Cross of the Order of Christ, and the picturesque arcaded balconies of the tower carried on stone corbels.

The fort of Belem is, as a whole, of business-like plainness and sobriety, but such ornament and detail as it has is entirely late Gothic of the Manoelino sort, with considerable use of cable mouldings, and shows no trace of Renaissance influence except in the entrance doorway. The Jeronymites House, on the other hand, is one of the most sumptuously decorated buildings in the kingdom. It was erected by Dom Manoel as a thank-offering for the discovery of the sea route to India, and founded in 1498, but advanced but slowly. It comprises a church —Sta Maria do Belem—with the monastic buildings round a cloister on the north side, and a wing over 600 ft. long extending westward in the axis of the church containing the undercroft of the dormitory and probably intended to form one side of a second cloister never carried out. Boutaca acted as architect till 1511, and Lourenço Fernandes after that, till the arrival of João de Castilho in 1517. The general disposition of the church, the earliest portion of the scheme to be built, would thus appear to be due to them, though the work seems to have been carried up but a little way by that date. About the same time as João there also arrived Nicolas the Frenchman, probably accompanied by assistants, who executed the Renaissance ornament to be found in the doorways and windows of the church. It is certainly one of the most remarkable churches in Christendom. Externally something in the colour of the limestone—the same as that used at Batalha and closely approximating to marble—as well as in the enriched windows and doorway widely spaced in a large expanse of plain wall, calls to mind the Cathedral of Como, while internally the soaring columns and the wide spaces of mysterious gloom, shot through with rays of tinted light, inevitably suggest the duomo of Milan. The windows, rather too big in scale, are

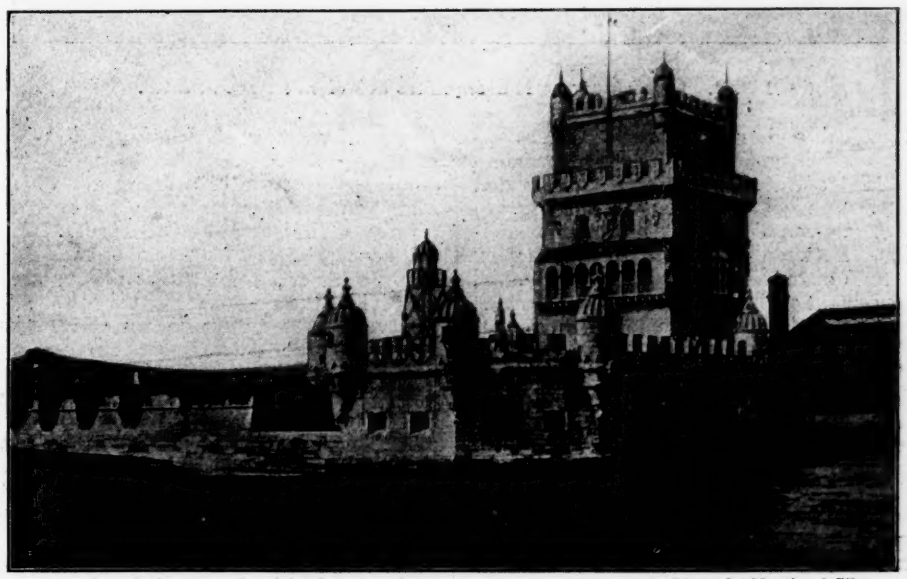


Photo. by Mar'ns & Silva.

Fig. 2. The Tower of Belem.

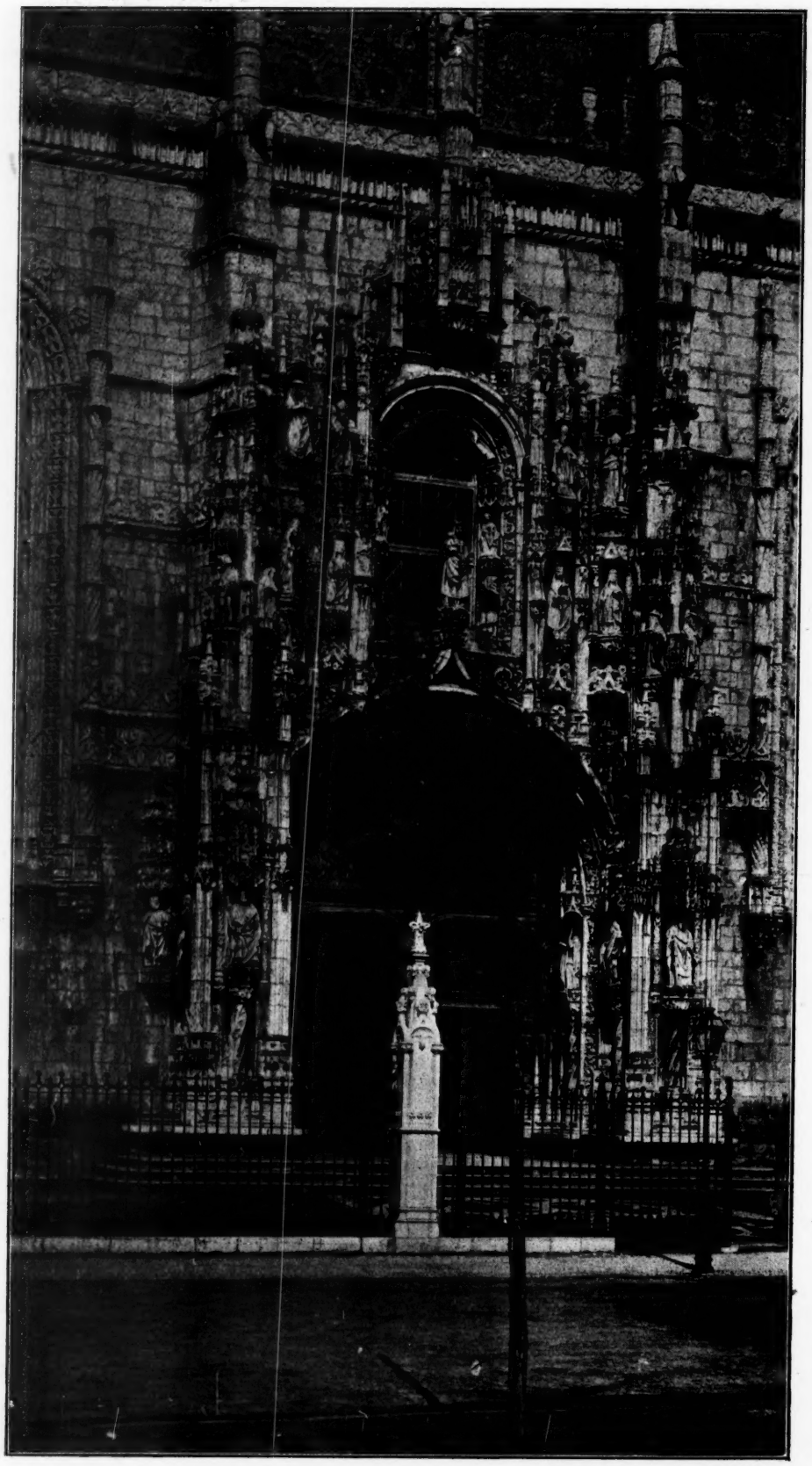


Fig. 3. Church of the Hieronymites at Belem : South Portal.

untraceried and round-headed, with deep external splays enriched with Manoelino ornament and flanked by a pair of banded shafts. The great south portal (Fig. 3) is a finely-conceived but intricate composition. Between two buttresses reaching to the openwork parapet a pyramidal arrangement of elaborate niches and statuary, crockets, and finials, frame in a round-arched and deeply-recessed double doorway and a window above it, and culminates in a lofty pinnacled canopy in two tiers.

The plan of the church is a peculiar one. The nave consists of five bays, but at the west the towers occupy the first bay of the aisles and the gallery runs out over the whole of the second. The transept, only slightly wider than the western arm, measures 95 ft. by 65 ft. It opens into a square chapel north and south and an apsidal choir of later date to the east. The great wonder of the church lies in its vaulting (Figs. 4 and 5), a more fully-developed example of a system of which a hint had been given three-quarters of a century earlier at Villar de Frades. Aisles and nave are carried up to the same height of about 80 ft., and there is neither arcade to divide the nave from the aisles, nor transverse ribs to divide them into bays except at the entrance of the transept. Springing direct from the top of the piers, vaulting ribs of similar curvature, like those of an English fan vault, radiate in all directions, but, contrary to English practice, the fans do not touch or intersect, but are divided by portions of what is in effect a barrel-vault, stiffened by a rib system. The transept being undivided by piers, its vault soars even higher than that of the nave, and yet this mighty vault is of such solid construction as to have stood unshaken when Lisbon was rocked to its foundations in the historic earthquake of 1755. The weakest point from the point of view of effect in the design of the interior lies in the piers (Fig. 4), which are slender octagonal columns only some 6 ft. in diameter, banded at intervals by strings, while their panelled sides are carved with rather coarse arabesques. One of the most original effects is seen in the westward vista (Fig. 5), where the lower portion is lost in cavernous gloom under the choir gallery, and, above, stray gleams light up the richly-wrought woodwork of the Coro Alto. The sacristy, chapter-house, and other monastic apartments, as well as the cloisters (Fig. 1), are likewise vaulted in a great variety of ingenious and beautiful fashions. The cloister is nearly square and in two stories. The strange Indian-looking tracery of the lower arcade is deeply set back under the shelter of elliptical arches thrown from pier to pier, one of them crossing each angle diagonally (Fig. 6). The faces and sides of the piers, as well as the soffits and spandrils of the arches, are carved with arabesques. The *ensemble* thus formed, overloaded and restless as it is, has yet a weird fascination, suggesting the exotic delights of a Rajah's palace rather than the setting appropriate to a Christian religious house. This was almost the swan song of Manoelino art, and the foreign artists who, under Manoel the Fortunate, were swarming into Portugal, had, as we have seen, already imported the new art of Italy.

BAROQUE ARCHITECTURE:

I.—BAROQUE ARCHITECTURE AND ITS BEGINNINGS IN ITALY.

OF all the many phases of art there is surely none which has suffered more from misunderstanding and ignorance than has Baroque architecture. For years it has laboured under a curse, the curse of a nickname whose origin is lost in obscurity and whose meaning is doubtful of definition. But, like the majority of nicknames, this one has caught a hold on the imagination and is remembered in all its pristine bitterness by the average man of to-day who remains in complete ignorance as to its significance. The purpose of this series of articles being to attempt some description and some criticism of the style in the principal countries of Europe, our first concern must be with its generally accepted limits, our next to consider how far limitation is justified by facts.

What, then, is Baroque architecture and how did it become so called ?

Even Dr. Murray's infallible dictionary does not help us here beyond a certain point. The word is found in French (in the form most familiar to us), in Italian, in Spanish, in modern Portuguese. It may have come from Africa to Portugal. In its present connexion it occurs in the writings of Saint Simon (1760-1825). The most plausible hypothesis is, that from signifying in Latin (*verruca*) "a wart," it came to be applied by jewellers to ill-shapen pearls (*barocca*), and at a later date to the fantastic, the bizarre, and the decadent in art or even in nature.

A second theory derives it from a scholastic term, *barocco*, meaning a figure of syllogism, which draws conclusions from the absurd, but this is discredited by the best authorities. The first explanation, moreover, has a certain rational basis which, as it may not have been remarked before, is perhaps worth setting down here. One hesitates before ascribing any great invention to Cellini, who surely of all men who ever lived had too good an opinion of himself. But may not he and his fellow-craftsmen have carried this strange word from goldsmiths' work to architecture ? Look at his statue of Perseus at Florence, or rather at the details of its beautiful pedestal. In these strange, uncommon scrolls, in this departing from the well-trodden ways of

Renaissance art, may we not imagine a reason for his jeweller-friends and admirers applying to the work the first slang word which came to their tongue-tips, a word in daily use at their benches? The idea is fanciful, no doubt, yet we know that in some of these smaller works of art we find the freedom of design which afterwards came to be called "Baroque" long before it reached the realms of architecture. And, in any case, we must account somehow for a term which has become so important after so mean an origin.

Putting aside further speculation in this direction as futile, we next come to the question of what is generally understood by Baroque architecture, and how far critics are justified in the position they have taken up. At the outset we find another foolish obstacle, for many writers draw no distinction between the words "Rococo" and "Baroque," which are in no way synonymous. The former term is usually applied to the purely bizarre or over-decorated examples of any post-Renaissance style of architecture and corresponds to "Flamboyant" in the Gothic period. We should probably apply it also to many examples of Renaissance days.

The word is almost as uncertain in its origin as "Baroque," but is usually derived from the French word *rocaille*, describing a sort of rustic rockwork, and is French by nature. In France, and to some degree in Germany, there actually was a Rococo style during the middle of the XVIIIth century, but in Italy, Spain, and England its influence was slight. If the object of these articles was to perpetrate paradoxes it might be said that Baroque architecture is Italian, and is described by a French name, while Rococo is essentially a French phase, and is therefore known by an Italian term. But whereas a Rococo building often loosely implies an over-decorated building in any modern style, a Baroque building is a more or less ornate example of a usually florid style. The one is a term applied to isolated examples, the other in general to the buildings of a more or less historical period. And while many Baroque buildings are Rococo, it does not follow that all are. If this were the age of Ruskin it would be an opportunity for printing here in black type, as *Aphorism No.* 1:—

"The terms 'Rococo' and 'Baroque' are not interchangeable."

This being conceded, we arrive at another important objection—that Baroque is used as an historical term, yet that in all countries of Europe we find examples of architecture n the period so pure, so severe, and so

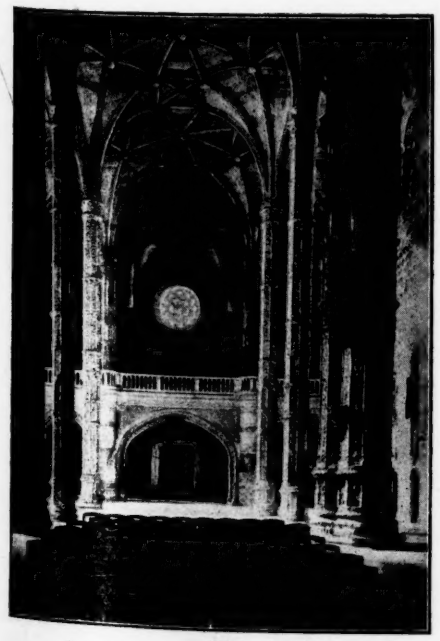


Photo. by Martins & Silva.

Fig. 5. Convent of Belem: Interior of Church, looking West.

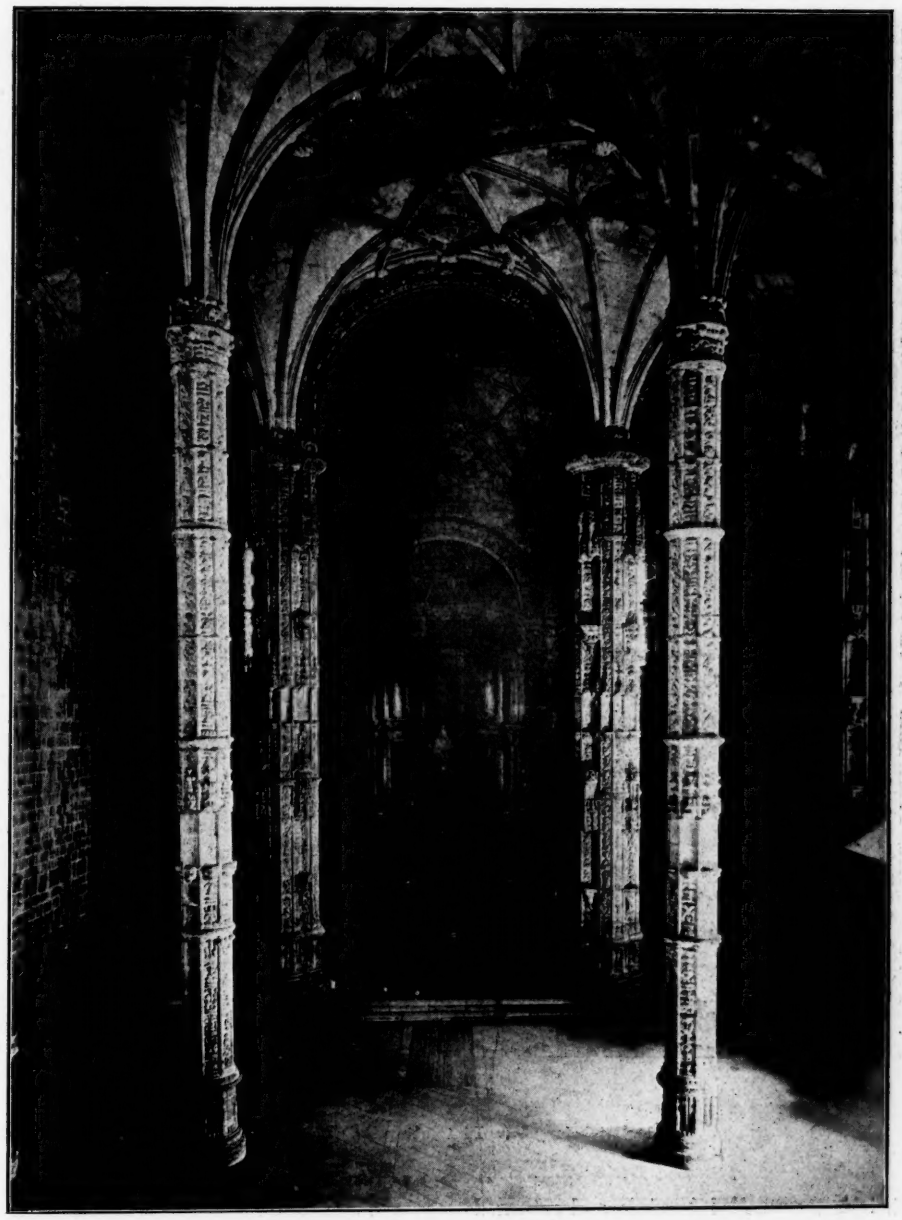


Fig. 4. Convent of Belem: Interior of Church, looking East.

obviously free from "the germ of the barocco corruption," that they cannot by any possibility be classed as anything but work of the Renaissance. An answer to this may be found very readily. Suppose we examine the more familiar architecture of our own country in the same way.

Are we to discontinue describing the Jacobean period as such because a Leeds merchant chose to build a Gothic church in Charles I.'s reign? Or must we cease to talk of "Georgian" because in the Yorkshire villages we find many houses erected in the XVIIIth century with mullioned windows and semi-Tudor detail? A definition of an architectural period cannot be absolute, but it generally applies to ninety examples out of every hundred.

The Baroque period dates from the time when architects began to revolt against the pedantic rules of the Later Renaissance schoolmen, and it lasts until they tired

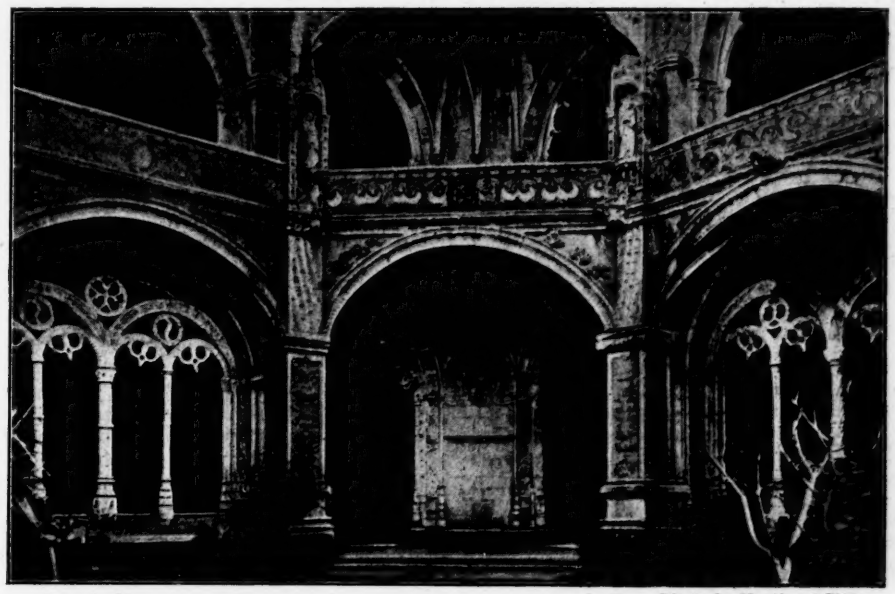


Photo. by Martins & Silva.

Fig. 6. Convent of Belem: Angle of Cloister Garth.

THE ARCHITECTURE OF PORTUGAL.

St. Peter's, Rome: From the West.

By Michelangelo. Illustrating the tendency to adopt Baroque elements in Michelangelo's later work.

of their untrammelled freedom and returned to their pedantry once more. As with contemporary movements in literature and other arts, its limits in architecture are different in every country and in almost every city of Europe. In some countries, such as Spain, it reaches the point of insanity, but its grades seem to be personal rather than local, and an exceptionally florid building is usually due to the work or influence of one wild brain, rather than to a prevailing tendency.

Baroque architecture is a normal development from Bramante's or Peruzzi's Renaissance types in Italy, of other Renaissance masters in other countries. It was encouraged by similar tendencies in painting and, as we have said, in minor arts such as goldsmiths' work.

For architecture is always the last art to feel a revolutionary change. It is too structural, too permanent, too eternal, one might almost say, to be blown from its course by every trifling æsthetic movement.

Lastly, the buildings of the Baroque period may, with few exceptions, be recognised by the general principles of their design and not by the abundance of their ornament alone. These conclusions might be emphasised in the Ruskin manner as *Aphorism No.* 2:—

"Baroque Architecture may be limited to an historical period, varying n date in different countries and cities, but in general beginning as the Renaissance spirit declined to pedantry and ending with the return to pedantry in the XVIIIth century. Its buildings may be recognised by the general principles which govern their design rather than by the abundance of their ornament."

Having defined to some extent the meaning of Baroque architecture, we will proceed to compare some of the criticisms which have been made of it as a whole.

As one reads these passages one cannot but regret that architects have so little to do with the forming of public opinion about their own craft. For while they are laboriously pursuing their calling as honest men should, bespectacled dilettanti with long hair from "our older Universities" are proclaiming to the world what the world should think about architecture, what styles are inherently good and what inherently bad (as if any style could in reality be either). So, although modern intellect in our profession has long ago embraced Baroque, consciously or unconsciously, though its characteristics are to be seen in most of the best public buildings of our day, the cultured man in the street is little further than he was when Ruskin told him to beware of "the foul torrent of the Renaissance."

Mr. Fergusson, for example, is now generally recognised as a critic whose most level judgments were on Oriental rather than on Western architecture, yet his influence on the British public has been enormous. His pen is not quite so bitter in relation to isolated Baroque buildings as we should expect, yet his conclusion is characteristic of most Victorian writers on the subject:—

". . . The history of Italian art may be summed up in a few words. During the XVth century it was original, appropriate, and grand; during the XVIth it became correct and elegant, though too often also tinctured with pedantry; and *in the XVIIth it broke out into caprice and affectation till it became as bizarre as it was tasteless.* During the XVIIIth it sank down to a uniform level of timid mediocrity, as devoid of life as it is of art." Even if we allow something for this writer's well-known acidity, we find his opinions echoed in more recent times. Take, for instance, some of the thirty lines in Mr. Banister Fletcher's popular "History of Architecture," for this is all the space devoted to a style which looms so large all over Europe:—

> "The Rococo period . . . represents an anarchical reaction. Sinuous frontages, broken curves in plan and elevation and a strained originality in detail are the characteristics of the period. Columns are placed in front of pilasters, and cornices made to break round them. Broken and curved pediments, huge scrolls, and twisted columns are also features of the style. In the interiors, the ornamentation is carried out to an extraordinary degree without regard to fitness or suitability, and consists of exaggerated and badly-designed detail, often over-emphasised by gilding and sculptured figures in exaggerated attitudes. . . . . Carlo Maderna, Bernini, and Borromini are among the more famous who practised this debased form of art. Among the most outstanding examples are the Roman churches of S. Maria della Vittoria by Maderna, S. Agnese by Borromini, and many churches at Naples."

Mr. Anderson's well-known book on Italian Renaissance architecture is possibly less abrupt, but practically ignores Bernini, mentioning him only in connexion with a part of his work at St. Peter's. He indeed ignores most of the principal buildings in Rome, and sums up his views on Baroque in his final sentence, as follows:—

> "By such freaks and caprices almost every building of the era, though, like certain of the Venetian works, not ignoble in composition, is more or less disfigured."

More judicious and informing criticisms than these are to be found in one or two books of a more historical nature than the sources from which we have quoted, but in all the works most in vogue among

architectural students we find the Baroque period dismissed in a few paragraphs, cold and contemptuous in tone. In fact, no beginner is given any hint that Baroque may have its redeeming features, nor is he quite honestly informed of its extent, many buildings undoubtedly Baroque in character being in some mysterious way excluded from the style.

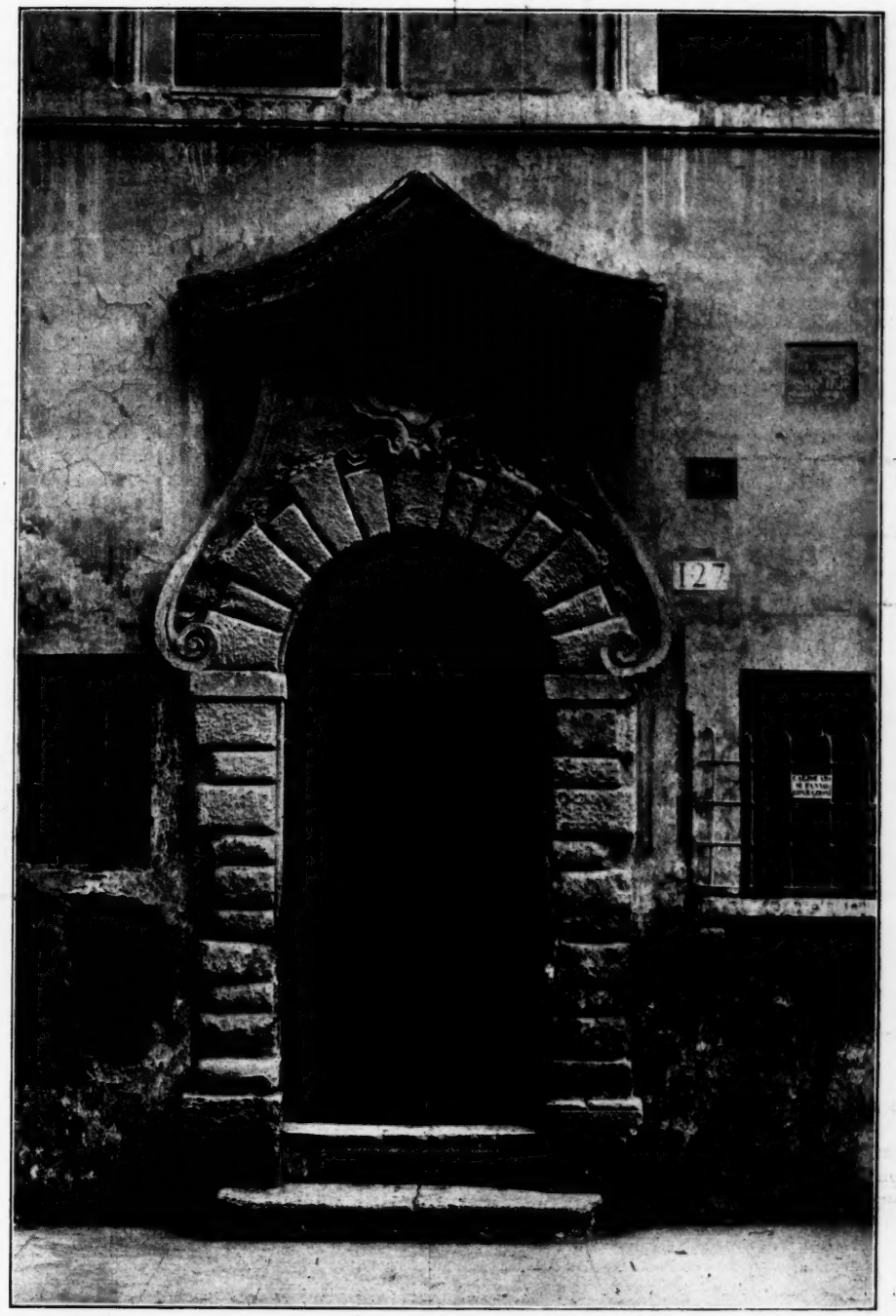
If any justification were needed for devoting a long series of articles to this subject it may be found in these extracts from the most widely-read handbooks of architecture at the present day. There must be many in our profession who at one time accepted these criticisms literally, and who were in the position of the present writer when first he visited Italy, believing that in Baroque there was no good to be found and that in studying it lay the quickest way to perdition.

He expected to find in Italy a few brazen, shameless examples of the style still standing conspicuous among cities of pure Renaissance palaces and Pazzi chapels, a sort of living monument to the lost souls of those who had designed them, a stern and dreadful warning to all young architects.

And instead he found Rome a Baroque city, with a classical quarter where the excavations lay. He sought for a pure Peruzzi building and discovered it with some difficulty, measured its mouldings, and went to rest in a Baroque garden. He tried to become enthusiastic about the Cancellaria, but remained placid till he reached Bernini's colonnade.

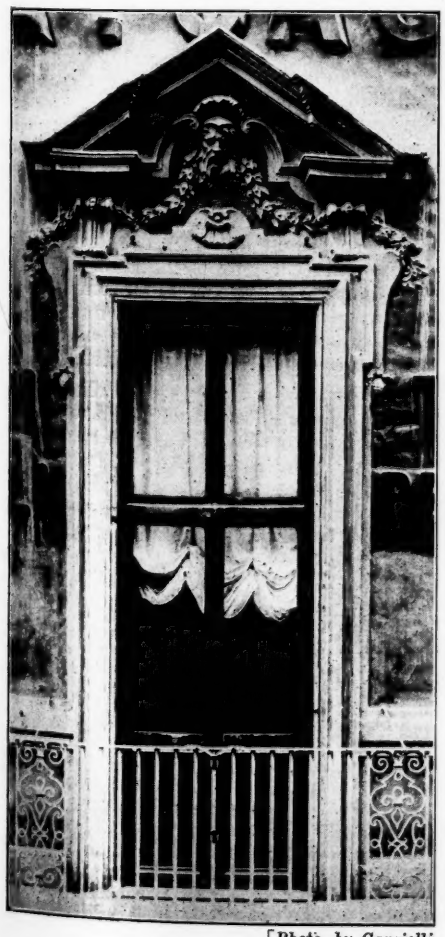
And so it is with all of us as we travel through Italy, or, for that matter, through other countries, too. In Venice and in Genoa, Baroque architecture dominates the streets, in nearly every smaller town away down to distant Lecce or up to Trieste Baroque architecture supplies the most picturesque and interesting features of the scene. The gardens and fountains, the villas and terraces were almost all built in this accursed XVIIth century.

You may deceive a layman into believing that the style is inherently bad by trading on his ignorance and throwing dust in his eyes, but you cannot persuade an architect of to-day that the work which followed the Renaissance movement had no redeeming features, that its greatest achievements are as nothing compared with the infantile stages of earlier days. There are those who would place Cimabue and Giotto far above the vigorous Michelangelo, and with such people argument is useless.



[*Photo. by Gargiolli.*

Doorway in Via Tomacelli, Rome.



[*Photo. by Gargiolli.*

Palazzo Cagiati, Rome: Window.

We have passed the time when histories of art rang down the curtain at the year 1550, and the epilogue is as interesting and most certainly as instructive as the phases which precede it. Indeed this age of eclecticism, when every man prides himself on being able to appreciate everything, should be a particularly auspicious occasion for considering in some detail and with an open mind the monuments of Baroque architecture in the principal countries of Europe.

There are good reasons why in this brief survey the first place and the most careful study should be given to Italy, for in Italy we find Baroque architecture in its most diversified and interesting forms.

The charm of Renaissance culture in Italy lies in its infinite variety, in the varying genius which inspired art and literature in each individual city. The courts of the Renaissance, more pagan than in Imperial Rome, were brilliant centres where the high-born and the talented jostled in merry intercourse with townsmen and common people.

It was to a happy, joyous, immoral Italy—a pagan, sociable, and wonderfully intellectual land that there came two upheaving movements, so that in a short time the whole character of the people, their art, their literature, their religion, and their very customs changed completely.

The first was the Reformation with all that it caused and led to, the second was the influence of Spain.

The Church in Italy at one time appeared to be hard pressed to defend herself against the Reformation movement, but liberal tendencies from within proved a strengthening factor and saved her from disaster. Her ultimate triumph over heresy, her wonderful success in stamping out opposition in every form, is largely due to the invigorating influence of the great XVIth-century Orders, the Capuchins, the Theatines, and, above all, the Jesuits.

There is nothing more remarkable in that century than the formation of this Society of Jesus and its instant magnificent triumph. The Theatines and Capuchins had done wonders towards creating a more devotional and serious spirit within the Church, but the Jesuits became in a very few years masters of the situation. Their rules and tenets appealed to the minds of educated men, their

vows secured complete secrecy and complete subservience, above all, their wonderful new educational system ensured that the next generation would have imbibed their principles and would spread them through the world. It was the success of the Jesuits which carried the Church to victory through the difficult times of the Reformation; it was the wealth and power of the Church which is responsible in one way or another for almost all the most famous buildings, religious, palatial, or monumental, of the Baroque period.

The influence of Spain is of almost equal importance to us. We find in Renaissance times a fine democratic burgher spirit existing all over Italy, a striving among artists and writers to excel one another for their craft's sake, a strange freedom from social barriers, and a glorious abundance of *joie de vivre*. The Spaniards changed all this. Black garments for gentlemen of rank displaced the gorgeous fabrics which formed so staple a part of Italy's manufactures, cloistered seclusion or dishonest intrigues for ladies took the place of the easy and stimulating manners of the Renaissance courts. An elaborate code of etiquette ruled the world of society. It was deemed ignoble to work with hands or brain, and militarism took the place of civic pride. Every comfort was sacrificed among these orstwhile gay Italians in order to share in the trumpery titles bestowed by Spain, to make a brave show before the world, to display a dazzling retinue of servants and carriages. It is, then, to the Spanish supremacy that we owe the formality and ostentation of this period, the inordinate craze for heraldry and external ornament, the fine staircases and façades, the stateliness and the dignity of it all.

Music and science began about this time to make great strides in Italy, for writers were debasing their art by becoming fulsome flatterers, and artists came at last to be often only the employees of wealthy patrons, so that intellect sought a new object.

But one must not forget that this whole Baroque movement had its parallel in other countries, in the "quaint conceits" of the English Euphuists or the *Précieux* in France. There was an artificiality in the atmosphere which explains many things, and the hypocritical stiffness caused by an admixture of Spanish etiquette with the counter-reformation concealed as loose a moral code and as pagan a mind as ever marked the Renaissance. The Baroque movement was largely due to the Jesuits and the Spaniards, but we will examine in detail the usual opinion that it first found vent in the work of Michelangelo and Palladio.

* * * *

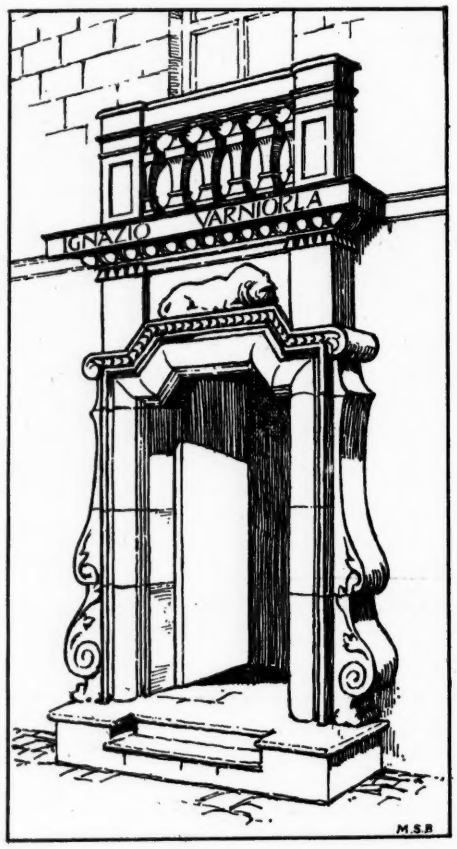
It is difficult for one who believes, in common with most of his generation, that Michelangelo and Palladio were by far the greatest architects of the Renaissance to wholly appreciate the view-point of those who swear by Peruzzi's mouldings or Brunelleschi's dome, by Giotto's tower or Sangallo's churches.

Rather than Fergusson's talk of his "dreadful vulgarities" and "fantastic details," we think of Michelangelo in the words of an anonymous writer whose criticism lies by me as "one to whom the service of beauty was a religion." We remember his long struggle against enemies and circumstances, and how he lived all his life in the midst of intrigue and treachery, though he was a lover of simplicity and solitude. We recollect his reply to the Cardinal who had been persuaded to hold an indignation meeting during the building of St. Peter's, and who protested that the choir would be too dark. On being told that there were to be three windows more than they knew of, the Cardinal complained that this was the first they had heard of it. "I am not, nor do I mean to be, obliged to tell your lordships or anybody else what I ought or wish to do. It is your business to provide the money and to see that it is not stolen. As regards the plans of the building, you have to leave them to me."

He was far above them, a man whose name is famous when the Pope and the Cardinals, the jealous clerk of work, and the pettifogging committee are all forgotten. He will remain one of the world's greatest men when his carping critics' platitudes are out of date.

A pedantic hack with a 2-ft. rule and a book of Orders may find mistakes in Michelangelo's detail; that does not alter the fact of his magnificent achievements of art, of his sculpturesque architecture, or his architectural sculpture and painting. He is responsible for the "barocco corruption" only in so far as he first introduced into Italian Renaissance architecture a boldness of conception and a vigour of execution which may, in all justice, be considered, not as the first step of the decline, but as the grand culmination of this great period.

And what of Andrea Palladio and his city of Vicenza? Palladio's reputation has withstood many severer attacks, and will resist many more. Every year his genius is the more appreciated and his



Doorway at Assisi.

principles adopted. Nor does it seem that his genius is so utterly at variance with Michelangelo's. He, too, strove for the dignified and the grand, but from the standpoint of the architect rather than of the artist-of-all-trades. He adhered a little more closely to rules because from boyhood he had been brought up on rules, whereas Michelangelo came to them late in life. It was not in his rules that Palladio's genius lay, but in his application of the accepted Orders to all the varied problems of architecture, in his ingenuity and inventive faculty. So although his latest biographer says that:—

> "His style in general has been defined as a mean between the severe use of ancient forms and the licentious style of those who reject all rule whatever,"—

He also quotes Palladio's own words on public buildings:—

> "Wherein, because they consist of larger dimensions and that they are beautified with *more curious ornaments* than private ones as serving for the use and conveniency of everybody, princes have a most ample field to show the world *the greatness of their souls*, and architects are furnished with the fairest opportunity to demonstrate their own abilities in *excellent and surprising inventions*."

The words italicised show that Palladio was no stickler for pedantry—his work bears it out; yet in this case, again, it seems fairer to him, and in all ways more equitable, to admit that he prepared the way for Baroque, as did Michelangelo, not by eccentricity or vulgarity, but by the dignified and appropriate originality of a great and powerful mind.

Palladio's inventive faculty lay chiefly in the direction of the general proportion of a design rather than in its less important details, yet in each respect his work is above reproach. As regards the former his work exhibits a wonderful freshness of idea in applying his orders to any sort of site and any sort of building. He it was who first familiarised people with the attic story as a new feature in building, and who borrowed from ancient Roman models so many things that the pure-souled upholders of the Early Renaissance shrink from with uplifted hands.

The "*motif Palladio*" is no newer than Diocletian's palace at Spalato, and was probably first reused in the XVIth century by Peruzzi.

Palladio certainly broke away from established custom in some cases of minor detail also. His use of sculptured figures has aroused much criticism, and he adopted the idea of reclining figures from Michelangelo and Sansovino. Though he never used broken pediments, we find broken entablatures in several cases (again a reversion to late classic models). His villas and gardens display all the ostentation and the dignity of the Baroque examples, yet their composition is for the most part above suspicion.

It is both despicable and ignorant to taunt him with the poverty of the materials which misfortune placed to his hand, to decry his beautiful palaces because the stucco is peeling off their façades, and because his patrons were, in many instances, too parsimonious to provide him with the stone for which he designed his buildings.

A purist who will abuse the stucco of 1550 will find himself hard put to it to defend the marble of 1450, and to say why an early Renaissance marble-covered campanile is more laudable than a stucco-fronted Palladian palace. But there are many similar points on which our famous non-architectural critics of architecture are so very determined and so remarkably wrong. Palladio's genius has been admirably summed up by Mr. Banister Fletcher in these words:—

> "He was not slavishly bound by his own rules as to the proportions of the classic columns and their entablatures. Like many another, he was an exemplar of the saying that a genius can be above rules which are made for smaller men."

To determine whether Palladio and Michelangelo can be actually held responsible for the introduction of Baroque architecture into Italy is by no means easy, but becomes almost so when we view their buildings in comparison with what appear to be the accepted views on Baroque architecture. They may have prepared the way, but they certainly did not venture on the tortuous path themselves.

M. S. B.

MURAL PAINTING.

THE design illustrated on the next page was exhibited at the recent Exhibition of Mural Painting, held at Crosby Hall, Chelsea, and was successful in obtaining the prize award of 25*l.* in Section 8. It is the work of Mr. Stanley North, who, under the *nom de plume* of Boreas, drew forth the criticism of a newspaper which stated that it was a "competent and craftsmanlike design, founded on the best period of Gothic decorative art." It has also, we understand, met with the high commendation of Mr. Aitken, of the National Gallery of British Art.

The design, as is shown, represents St. George and the Dragon. It is executed in tempera egg medium, on a background of flat gold. The contest takes place on a sward between the King's palace and the town, and the King's daughter, in her bridal robes, bound to a tree, awaits death with the last sheep unslain by the Dragon. St. George, wearing a wreath of eglantine, plucked from the bush near the Princess, is direct and calm in his righteous cause. The ground is covered with flowers, which form a lively chintzlike pattern in many hues. The Dragon, more stealthy than strong, bends the lance in his frantic efforts to guard its deadly stroke. This is a fight between vice and virtue, rather than a test of mere physical strength. The whole scheme has a pleasing effect of all-over pattern, there being, broadly speaking, three tones—the gold background, the ivory colour of the horse, and the green sward. The composition is very decorative in its flat treatment. The trees on the gold are conventional, and the palace and town carry the colour of the horse through the picture. The red in the harness, the cross on the tabard, the little flags, and the roofs of the houses, has its true value. The black helm on the ground and the armour of St. George form a note which is essential in decoration. The blue bridal robe of the Princess, with its pattern of gold, is again echoed in the lining of the tabard and the saddle.

The full-size painting will be executed on the wall of the London County Council School in Cable-street, St. George's-in-the-East. The method of painting is similar to that used in the execution of the ten portraits in the National Gallery, probably of the second or third century of our era, from Hawara Cemetery, Fayrum, Egypt, and discovered by Mr. W. M. Flinders Petrie. The pigments are mixed with wax and laid on in the melted state. Wax is practically unchangeable by time, and its permanency is almost assured, for the pigments are so locked up in their medium as to be protected from the bad atmospheric conditions of our climate.

HISTORICAL NOTES.

Monastic Properties in the Market. No LESS than three estates formerly connected with monasteries are for sale. Two of these contain ruins of priories—Hardham, near Pulborough, and Monk's Horton, near Hythe. The third one is the fine house of Monks, near Dorking, with Monks' Farm, and many acres of beautiful grounds. It is seldom such a glut of ecclesiastical properties come under the hammer, and the fact is worthy of a record in these columns.

Seascale Church, Cumberland. A HANDSOME dwarf chancel screen has been erected in this church to the memory of the late Mr. J. Wrigley, J.P., and a former churchwarden, who had prominently identified himself with the church work of the district. The screen is of Austrian oak, and has been designed by Mr. J. H. Martindale, of Carlisle, and is in two parts, north and south, each consisting of six deeply-recessed and canopied panels with carved frieze. The ends are returned east so as to form priests' stalls. Already there are several memorial windows in this countryside church, which now bids fair to become one of the most interesting in the county.

Rob Roy's Castle to be Preserved. THE castle of the famous Rob Roy built in the XIIIth century on an island in Loch Dochart, and known as Loch Dochart Castle, has been taken in hand by the Scottish Historical Antiquarian Association, and is being renovated to ensure its safety and permanency. The castle formerly belonged to the Campbells of Lochawe, and is now the property of Mr. William Christie, who is giving substantial financial assistance to the work. The castle is said to have served Bruce for a retreat after a defeat by the Lord of Lorne.

St. Stephen's Church, Norwich. IN the Norwich Consistory Court Mr. Chancellor North recently gave judgment in the case of the removed footpace from the chancel of St. Stephen's Church, Ipswich. The step in question had several times been the subject of complaints, and at last the Rector took upon himself to remove it, without first obtaining a faculty authorising him to do so. The Chancellor's decision states that no structural alteration may be made in any part of a church without a faculty, backed in the first place by the vestry duly summoned, and then formally issued by the Chancellor of the Diocese in his own Court, authorising what is proposed to be done. The fact that it was sought to remove what, in the first place, had been illegally introduced or erected did not take the matter from the jurisdiction of the Court. No incumbent may be a judge in his own cause. It was urged by the defendant that the step was removed by his orders as it was a source of danger to the celebrant at Holy Communion. The Court ordered that, as the step had been removed without a faculty, it must be restored.

Hackney (Old) Church. A FUND is opened for the reparation, at an estimated cost of 500*l.*, of the tower of the old parish church of Hackney. It is also proposed to obtain a faculty for conveying the site and fabric to the Borough Council. The XIVth-century tower and Sir Henry Rowe's chapel (1614) are all that remain of the old parish church, dedicated to St. Augustine, of which the nave and chancel were rebuilt in 1517 by Sir John Heron and the Rector, Christopher Urswick. The present parish church of St. John was erected in 1792-7, for 2,500 sittings, after James Spiller's designs in the Græco-Doric mode (sometimes attributed to Sir Robert Smirke), and is remarkable for its plan—that of a Greek cross, the four arms, with pediments, being 21 ft. deep, and for the large area at the crossing 63 ft. square, which is covered by the roof that has no interior support. The steeple and five porches were added in 1812-3. A curious hand-pillory, on wheels, for flogging, was found in the tower about twenty years ago. Edward de Vere, Earl of Oxford, was buried, 1604, at the foot of the tower; amongst the earlier memorials preserved in the new church is that of (1537) Henry, fifth Earl of Northumberland, Henry VIII.'s rival for the hand of Anne Boleyn and a judge at her trial.

The Old Conduit-Head, Queen-square, Bloomsbury. WE gather that this interesting structure will shortly be re-erected at the London Museum. Popularly known as the Devil's, or Chimney, Conduit, it lay beneath the soil in the garden of Chalfont House, No. 20, Queen-square, and supplied water to the Grey Friars Convent and, latterly, Christ Hospital. The hospital continued to derive water from that and other sources in Bloomsbury, amongst them being those in Red Lion-square, in the fields now traversed by Bedford-place, and in and about Lamb's Conduit-street. The Queen-square conduit-head seems to be of early XIVth, or perhaps late XIIIth century date; a flight of steps descended to the vault covering a tank, the stone masonry, in good preservation, having many initial letters and a date "1600" cut therein. Some fifty years ago there were in the garden of No. 30, East-street a pump and spring with a stone bearing an inscription stating it was "the head of the spring Lamb's Conduit Water." In 1577 William Lamb, citizen and Clothworker, rebuilt the Snow-hill conduit (1497) and laid pipes therefrom to a head just beyond Great Ormond-street. That well-head was shifted in 1746 after the building of the Foundling Hospital to the yard of the adjacent "Lamb" tavern where, in 1851, J. W. Archer found under the pavement a flight of steps, a bricked vault, and the well. Archer's drawings of the "Lamb's Conduit" in Long-yard and that in East-street are in the British Museum.

Egyptian Blue Enamel. THE famous blue enamel or glaze produced by the early Egyptians, and of which many fine examples remain to this day, appears to have been prepared with a copper oxide, and the process was employed as early as the year 1600 B.C. Enamel has for basis a fusible and colourless glass, rendered opaque and coloured by the aid of metallic oxides, fused, powdered, and washed before being applied to the surface to be enamelled. The process is completed by firing the whole in a suitable furnace.

Long Marston Church, Norfolk. A FACULTY has been granted in the York Consistory Court to the Rev. Edmund Baddeley, the Rector of Long Marston Church, for the erection of some carved oak panelling at the east end of the church, and the placing in the edifice of a tablet containing a list of former rectors of the parish. The church, dedicated to All Saints, originally stood on a hill a mile distant, but the structure was taken down in 1400, and built on the present site with the same materials. It is a stone building in Norman and Early English styles of architecture, containing chancel, nave, north aisle, and embattled western tower, with pinnacles. It was restored in 1869 under the direction of the late G. Gilbert Scott, R.A., and contains memorials to the families of Thwaites (1602), Thompson (1740), Roundese, Micklethwaite (1681), and Smith (1820). In the chancel are some choir stalls bearing much carving.

Design for Mural Painting. By Mr. Stanley North.

THE BUILDING TRADE.

THE NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS OF GREAT BRITAIN AND IRELAND:

SUMMER MEETING AT NOTTINGHAM.

(*Concluded from last week, page* 183.)

IN accordance with arrangements, Mr. J. F. Mathieson, one of the National Health Insurance Commissioners, and Mr. G. W. Irons, of the Board of Trade, invited members to question them on any points on which they desired information regarding the Insurance Act. Numerous questions were asked and answered, the chief interest being centred in a reply by Mr. Irons regarding the option which employers have of arranging with the Labour Exchanges to stamp their cards. This gentleman said that any employer entering into such an agreement could engage his workmen where he pleased, but labour which was engaged outside an Exchange could not be part of the arrangement for stamping cards by the Exchanges. They would continue to stamp the books of the men who were in employ at the time the arrangement was made and of those men who were subsequently engaged through an Exchange, but men engaged in other ways after the arrangement had been made would have to have their cards stamped by the employer. At Leicester practically every large builder had come into the arrangement, and they had given facilities which they believed would result in all the cards and all the books being kept at the Exchange, and the men being engaged through the Exchange. The system was working quite smoothly at Leicester, and he had similar reports from Burnley, Preston, and Bolton.

Asked how the Labour Exchanges would register disputes in the building trade, Mr. Irons said that their only means of registering disputes was that they would provide facilities both for the employer and for the secretary of the unions concerned to say exactly what the dispute was. All applicants for work would be told if the union had a dispute with an employer, and they could please themselves whether they would go or not.

Mr. Mosse (Liverpool) asked whether, supposing there was a dispute with an individual firm, the Labour Exchange would register the dispute without communicating with the employer or with the employers' association.

Mr. Irons replied that, as a matter of fact, there was no obligation upon the Exchange to do either one thing or the other. If either side notified them of the dispute they would notify it to the workman. If they had the two statements they would communicate them to the applicant for employment, but if they had only one statement they could only give the one.

Mr. Mosse said that in view of that statement he thought it behoved the Federation to leave the Labour Exchanges severely alone. If they tied their hands to take all their labour from the Labour Exchanges in twelve months' time every operative in the building trade would apply to those places for work, and should an employer have a dispute he would have to lock out the whole of his men, and he would not be able to get fresh men by advertising in the newspapers as he could at present.

Mr. G. H. Wright (Birmingham) raised the question of position of contractors under the Insurance Act who had entered into contracts prior to the Act, and who, therefore, had not been able to recoup themselves the extra charges they would have to pay. He said that, as a rule, when any new burdens were imposed upon contractors by Act of Parliament they had definite notice that the Act would come into force at a particular date, and they were able to cover themselves. In the case of the National Insurance Act contracts had been entered into during the first six months of this year, and not a single contractor knew before July 14 whether the Act would come into force on the 15th or not. Under the Act the King in Council had power at any moment before July 15 to postpone the Act until January 15, 1913, and contractors evidently assumed that it would not become law until then. He did not suppose that a gathering like that could go fully into such a question, but he thought the Council might take the matter into consideration to see whether it would be possible to recommend all contractors who had entered into contracts during the first six months of 1912 to make some claim upon the building or works proprietor for a recoupment of the money they would have to pay in the form of national insurance until January 15 next. It might be advisable to take counsel's opinion on the matter.

Mr. W. Thomas (Cardiff) said that in that town a contractor had made application to the Corporation for his extra expenses on a contract owing to the Insurance Act, and the Town Clerk had advised the Council to take counsel's opinion. He suggested that it would be well for them to let the matter stand in abeyance until they learned what the Cardiff Corporation did.

Mr. A. J. Forsdike (Sheffield) said he hoped the Federation would get counsel's opinion. He had no doubt that there were many gentlemen present who were in the same position as himself. He had two contracts running that were made before January 1, 1912, and therefore it was absolutely impossible for him to make any provision whatever for this extra charge. He thought that each of the affiliated associations should take this question seriously into consideration and arrive at a common understanding so as to give their architects notice that they would eventually make a claim for the charge.

Mr. Mosse proposed a resolution asking the Administrative Committee to take counsel's opinion on (*a*) what is a contractor's position with regard to the Insurance Act, parts 1 and 2, under contracts entered into prior to the Act being passed, and still being carried on? (*b*) what is a contractor's position under the Act of contracts entered into after the Act was passed but before the Act became law, and still being carried on? and, further, to draft a clause to avoid such burdens being imposed in future in respect of contracts running.

Mr. W. H. Hope seconded the resolution, which, after some discussion, was carried.

The Secretary read a communication from the Engineering Employers' Association asking the Federation to recommend their members not to pay the workmen's contribution under the Insurance Act.

The President said he took it that would generally be done, but he thought they should make an exception in the case of indentured apprentices.

After some discussion a resolution was agreed to to this effect.

On the proposition of the President it was agreed that the next meeting of the Federation should be held in London.

The President moved the following resolution *re* Valuations under the Finance Act, 1909-10:—"This Conference of building trades employers of the United Kingdom records its unanimous and strong protest against the practice of undervaluing house property by the official valuers under the Finance Act, 1909-10, which obtains, many of the valuations being 5 per cent. to 15 per cent. under prime cost. As a result the confidence of investors is shaken, sales are stopped, and severe depression exists in this branch of the building trade, and serious loss accrues to those engaged therein. This Conference respectfully asks that the Government will institute an inquiry, which it has confidence will result in improved methods of valuation being adopted." He said he had a few cases illustrating the position in Nottingham. The first valuation he had referred to a block of property which cost him 3,455*l.* to build—the prime cost. The provisional valuation of that property was 3,075*l.* The site value of that provisional valuation was put down at 35*l.*; and the prime cost was 60*l.* 15*s.* He had other instances where the depreciation amounted to anything between 15 and 25 per cent. He had a letter in his possession from one of the most reputable firms of estate agents, in which they said that their experience had taught them that all classes of houses and buildings had suffered a decline in value in consequence of the Finance Act of 1909-10. Investors had become so frightened, and lenders of trust moneys had become so alarmed, that the calling in of mortgages had practically ruined many small people. There was no doubt that the method of valuation was having a most damaging effect upon the building trade, and they were fully justified in protesting against it.

Mr. Mosse said that the Government had within the last week or ten days appointed a Committee to go into the questions of these valuations, and he would therefore suggest that instead of asking for an inquiry they should ask the Government to receive evidence from the Federation.

The President said he was pleased to hear what Mr. Mosse had said, and he was quite willing to fall in with his suggestion that they should ask the Government to receive evidence from the Federation.

Mr. Smethurst seconded the resolution as amended.

Mr. W. Moffat said he hardly thought the resolution was strong enough, and if the values that they had had at Nottingham were only underwritten to the extent which the President had suggested, all he could say was that they were more fortunate than they were at Birmingham. He had the case of certain land in which his firm was interested. A sale took place in 1895 at 14*s.* 6*d.*, and recently a sale brought in 21*s.* The provisional valuation was 6*s.* per yard. The next case was a piece of land in which a member of his own family was interested. It was sold in 1865 for 360*l.*—the bare land. It was sold with building contracts on it for 1,400*l.* in 1872, and the value at the present time was probably about 1,600*l.* The provisional valuation was 385*l.* Another case was that of a piece of land in one of the best residential suburbs in Birmingham, which sold for 235*l.*, the executors' reserve at the sale being 140*l.* The provisional valuation was 40*l.* Comment was needless.

Mr. Sinclair (Scarborough) and Mr. Smethurst supported the resolution, and it was carried.

Mr. Smethurst strongly criticised the manner in which the provisional valuations were being made, and pointed out that Mr. Lloyd George, in reply to the deputation which waited upon him from the Federation in 1910, distinctly stated that any increment which arose from a man's skill and brains having been put into his capital did not come within the meaning of the Finance Bill. He moved that the Administrative Committee be requested to take into consideration the advisability of taking a test case before a referee to see whether that was correct or not.

Mr. Thomas (Swansea) seconded the resolution, which was carried.

Votes of thanks to the Mayor for the use of the hall, and to the President for presiding, concluded the proceedings.

GENERAL BUILDING NEWS.

NEW CHURCH OF ST. MARY, DORCHESTER.

The new Church of St. Mary, Dorchester, which has taken the place of the temporary iron structure erected fifteen years ago, has been designed by Mr. C. E. Ponting, F.S.A., the architect, and is capable of seating 750 people. When completed the tower will be 123 ft. high and 26 ft. square to the outside of the buttresses. A feature of the exterior is the lofty east end, with its rich seven-light window, which, together with the gable cross at a height of 53 ft., is a conspicuous sight for miles around. The new church possesses chancel, aisles, and transepts, and between the south transept and the chancel is the Chapel of the Annunciation. The nave and chancel are 132 ft. long and 40 ft. high. The old rood-screen has been brought from the temporary church, and there is a beautiful reredos of oak rising on each side of the east window. The church was illustrated in the *Builder*, December 1, 1911

TAUNTON PARISH CHURCH.

It has been decided to complete the restoration of the ancient Parish Church of Taunton at a cost of 650*l.*, towards which sum 250*l.* has been raised in a few days. The scheme of restoration will comprise repairs to walls, windows, and the renovation of an oak parclose screen. The structure stands near the site of an old Augustinian priory, and is long and low, with no chancel arch, but a fine tower, rising to a height of 153 ft.

LONDON SCHOOLS.

Five more of the original Board schools, namely, New-road, Clapham; Creed-place, Greenwich; Caledonian-road, Islington; Star-lane, Fulham; and Vicarage-road, Woolwich, are to be reconstructed. Works now in progress by the London County Council include the erection of four secondary schools, two central schools, one special school, and one technical institute; the extension of the school of art; the rebuilding or enlargement of twenty-three schools; and the execution of minor improvements at twenty-seven schools.

SCHOOLS, BROOMFIELD, CHELMSFORD.

The new Council Schools at Broomfield consist of four classrooms, with accommodation for fifty children in each room, 200; one classroom, with accommodation for sixty children, 60; one classroom, with accommodation for forty-eight children, 48; total, 308. On the north side, separated from the classrooms by a 6-ft. corridor, are the girls' and infants' cloakroom, boys' cloakroom, assistant teachers' room, with lavatory, etc.; head teachers' room, with lavatory, etc.; two storerooms, a wash-up place for the caretaker, and a marching corridor (which will also be used as a cookery-room), 39 ft. 6 in. by 17 ft., jutting out into the playground. The school is heated throughout with open fires and a system of hot-water pipes and radiators. The architects were Messrs. C. & W. H. Pertwee, of Chelmsford, and the builder was Mr. T. J. Bailey, of Chelmsford.

NEW BUILDINGS IN LONDON.

Alterations, Public Library, North Kensington (502*l.*); Mr. T. P. Figgis, architect, 28, Martin's-lane, E.C.; Messrs. Chambers & Co., builders, 7, Ealing-road, South Ealing, W. Premises, 120 and 122, East-street, City-road, E.C.; Messrs. Lovegrove & Papworth, architects, 374, Old-street, E.C. Telephone Exchange, Victoria, S.W.; Messrs. Galbraith Brothers, builders, 46, Camberwell-green, S.E. Buildings, 10-11, Finsbury-circus, E.C.; Mr. R. Creed, architect, 5, Verulam-buildings, Gray's Inn, W.C.; Mr. W. E. Blake, builder, 17, Southampton-street, W.C. Three houses, Fox-lane, Palmer's Green, N., and twelve houses, St. George's-road, Southgate, N.; Mr. W. A. Goring, builder, Fox-lane, Palmer's Green, N. Additions to British Museum, Bloomsbury, W.C.; Mr. W. E. Blake, builder, 17, Southampton-street, W.C. Offices for Public Trustee and Lunacy Commissioners, Sardinia-street, Kingsway, W.C.; His Majesty's Office of Works, Storey's-gate, Westminster, S.W.

ALTERATIONS AT THE FRENCH GALLERY.

Following the ancient lights action, Wallis *v.* Biddulph, the French Gallery in Pall Mall will be altered so that the lighting shall not be impaired by the extensions to the United Service Club, now being carried out by Messrs. Thompson & Walford. Mr. William Woodward, F.R.I.B.A., will superintend the work on behalf of the French Gallery.

NEW BATHS, LIGONIEL.

These new slipper and Lassar baths have been erected from the designs of Mr. J. G. Gamble, of the City Surveyor's department, at a cost of about 2,000*l.* The main façade of the building is 88 ft. long with a total depth of 42 ft. The central block contains the ladies' and gentlemen's entrances, offices, waiting-room, and superintendent's quarters. The general contractor was Mr. Isaac Copeland, of Belfast, and the heating work was carried out by Mr. A. Sayers.

FIRE-STATION, EAST GRINSTEAD.

Mr. W. E. Woolam, the Borough Surveyor, prepared the plans for the new fire-station, which has been erected at a cost of about 600*l.* The contractors for the work were Messrs. C. & H. Gasson.

TRADE NEWS.

Under the direction of Mr. H. Foxall, Lic.R.I.B.A., architect, Carlisle, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air-inlets, has been applied to St. Cuthbert's Roman Catholic School, Union-street, Carlisle.

Messrs. James Brooks, Son, & Adkins are the architects for a chapel now being erected at St. John the Baptist Church, Holland-road, Kensington, by Messrs. E. A. Roome & Co., of 36, Basinghall-street, E.C.

The Irlam New Picture Palace, Manchester, is being ventilated by means of Shorland's patent exhaust roof ventilators and special inlet ventilators, supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

Messrs. O'Brien, Thomas, & Co., of 17 and 18, Upper Thames-street, E.C., and Excelsior Works, Hatcham, London, S.E., have recently supplied to Worthing two of their school grates with porcelain enamelled faience mantels and canopies. The new isolation hospital at Shepton Mallet has also been fitted with the D. O. Boyd hygiastic double-fire ward stoves with porcelain enamelled casing for the ascending smoke pipe. In addition to these, grates have also been supplied to Wishford for the local school, also to various schools under the Huntingdon Education Committee and the Buckinghamshire Education Committee.

FLEET (HANTS) SEWERAGE.

At a meeting of the Fleet Urban District Council held on August 1 the Fleet Urban District Council passed a resolution adopting the scheme prepared by Mr. T. J. Moss-Flower, C.E., 28, Victoria-street, Westminster, and Bristol, for the main sewerage of Fleet, Hampshire. It was decided to enter into a formal agreement with Mr. Moss-Flower for him to act as engineer for the scheme. The scheme involves upwards of 16 miles of sewers, lifting plant, sewage disposal works, etc., and the estimated cost is 30,000*l.* The scheme adopted was submitted in a limited competition, the adjudicator being Mr. H. Percy Boulnois, M.Inst.C.E.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABERDEEN.—Training centre (12,000*l.*); Mr. J. A. Allan, architect, 25, Union-terrace, Aberdeen.

Atherton (Manchester).—Four houses, Birch-road, and offices, Orchard-street, for Messrs. Blakemore & Co., Ltd., bolt and nut manufacturers, Atherton.

Batley.—Warehouse for Messrs. J. T. & J. Taylor, Ltd., woollen manufacturers, Station-road, Batley.

Birmingham.—Extensions to sanatorium, Yardley-road (29,000*l.*); Mr. H. E. Stilgoe, Surveyor, Town Hall, Birmingham.

Bishop Auckland.—Hospital (7,000*l.*); Mr. R. B. Thompson, architect, Market-place, Bishop Auckland.

Blyth.—School (10,000*l.*); Messrs. Fenwick & Robson, architects, Pearl-buildings, Newcastle; Messrs. Robinson & Waddell, builders, Blyth.

Brancepeth (Co. Durham).—School (4,000*l.*): Mr. W. Rushworth, Architect, Shire Hall, Durham.

Brandon.—Alterations to school, High-street (3,504*l.*); Mr. F. R. Hughes, Secretary, West Suffolk Education Committee, Bury St. Edmunds.

Cardiff.—Workmen's dwellings; Mr. W. Harpur, Engineer, City Hall, Cardiff.

Chesham.—Post-office; Mr. Jesse Mead, builder, Berkhamsted-road, Chesham.

Coalville.—Hospital; Mr. J. T. McCarthy, architect, Central-chambers, Leicester.

Coggleshall (Essex).—School (5,000*l.*); Mr. F. Whitmore, architect, Duke-street, Chelmsford.

Coventry.—Electric sub-stations in Gordon and Toleshill roads, also additions to offices at electric light works; Mr. J. E. Swindlehurst, Surveyor, Town Hall, Coventry.

Derby.—Tuberculosis dispensary, extensions to sanatorium, etc.; Mr. J. Ward, Surveyor, Town Hall, Derby.

Doncaster.—Liberal club (2,500*l.*); Messrs. Garside & Pennington, architetcs, 24, Wesley-street, Castleford; Messrs. Dennis, Gill, & Sons, builders, Nether Hall-road, Doncaster.

Dundee.—Training college (26,000*l.*); Messrs. J. Binny & Co., builders, Rosefield-street, Dundee.

Eastbourne.—Additions to offices, Grove Hall (674*l.*); Mr. M. Hookham, builder, Springfield-road, Eastbourne. The following plans have been passed:—Additions and alterations, 23, Langney-road, for Trustees of Y.M.C.A.; Mr. S. G. Scales, architect. Additions, "Moira House," Carlisle-road, for Mr. C. B. Ingham; Messrs. G. Bainbridge & Son, builders. Four houses, Hampden-avenue, Hampden Park; Mr. W. R. Box, architect; Mr. Izzard, builder. Additions to school, Green-street, for Managers, St. Mary's Boys' School; Messrs. William Newman & Sons, builders. Primitive Methodist Church, Whitley-road, for Trustees of Primitive Methodist Church; Messrs. G. Baines & Son, architects.

Edinburgh.—Additions to stores of Mr. W. Thyne, wholesale stationer (2,200*l.*); Mr. T. G. Marwick, architect, 43, York-place, Edinburgh. Villa, Murrayfield-road (2,400*l.*); Messrs. Gibson, Skipwith, & Gordon, architects, 5, Old Bond-street, W. Additions to workshops of Messrs. J. Cochrane & Co., golf ball manufacturers (2,000*l.*); Messrs. P. & J. Henderson, 20, Leith-walk.

Ellesmere Port.—Chapel (1,719*l.*); Mr. J. Jones, builder, Ellesmere Port.

Exeter.—New railway-station; Mr. Sutcliffe Marsh, engineer, G.W.R. offices, Taunton.

Folkestone.—Plans have been passed for additions to No. 22, Shorncliffe-terrace for Mr. A. Hughes; Mr. R. Moody, architect; Mr. E. Gibbons, builder. And for a motor garage at Sanroyd Lodge, Trinity-road, for Mr. W. Rees; Mr. C. Jenner, builder.

Glasgow.—Granary at Meadowside for the Clyde Trustees; sawmill, Baird-street, St. Rollox, for the Glasgow Timber Exporting Company, Ltd.; addition to drapery warehouse, Paterson-street, for the Scottish Co-operative Wholesale Society, Ltd., 95, Morrison-street, Glasgow.

Gloucester.—Fire-station (1,500*l.*); Mr. R. Read, Surveyor, Town Hall, Gloucester. Additions to Hatherley-street Schools; Mr. E. A. Pryer, architect, 18, Clarence-street, Gloucester. Additions to grammar school: Mr. W. B. Wood, architect, Queen-street, Gloucester.

Grimsby.—Extensions and alterations to workhouse and new infirmary; Clerk, Guardians' Offices, Grimsby.

Gronant.—School; Mr. Samuel Evans, Surveyor, County Council Offices, Mold.

Guisborough.—Nurses' quarters adjoining infirmary (722*l.*); Mr. J. G. Porteous, builder, 36 and 38, Redcar-road, Guisborough.

Hampshire.—School, Romsey; technical school and pupil teacher centre, Sholing; additions to school and headmaster's house, Burley; alterations and additions to school, Crofton; enlargement at Denmead School; reconstruction of school, Lymington; and enlargement of School of Arts, Winchester; Architect to the Southampton County Council, The Castle, Winchester. Additions and alterations to police-station, Totton (900*l.*); also six attendants' cottages and accommodation for nurses at Hants Asylum; Mr. W. J. Taylor, Surveyor, The Castle, Winchester.

Harrogate.—Tower to St. Peter's Church (2,200*l.*); the Vicar.

Highbridge (Exeter).—School; Messrs. Samson & Coulthurst, architects, High-street, Bridgwater.

Horsham.—Infants' school, adjoining Denne-road School (1,975*l.*); Mr. H. W. Bowen, West Sussex County Council, Worthing-road, Horsham.

Hove.—Proposed garage, "Westcourt," New Church-road; Messrs. J. Parsons & Sons, builders, 176 and 178, Church-road, Hove. Underground lavatory (1,080*l.*); Mr. H. H. Scott, Surveyor, Town Hall, Hove.

Ipswich.—Convent; Mr. J. S. Corder, architect, Wimborne House, Tower-street, Ipswich.

Jarrow.—Drill hall; Messrs. Wright & Chapman, architects, Grainger-street, Newcastle. Hospital (6,000*l.*); Mr. G. T. Brown, architect, 51, Fawcett-street, Sunderland.

Kilmalcolm.—Villa (2,200*l.*); Mr. W. B. White, architect, 219, St. Vincent-street, Glasgow.

Kingswood (Bristol).—Schools for the Zion Methodist Church; Mr. W. H. Dinsley, architect, 12, Cleveland-street, Chorley, Lancs; Mr. C. Bryer, jun., builder, Bridgwater, Som.

Kirkmichael.—Police-station, Parkgate (2,000*l.*); Mr. J. M. Bowie, architect, 53, Buccleuch-street, Dumfries.

Knowsley.—Alterations to parish church for the Vicar.

Largs.—Garage; Messrs. Fryers & Penman, architects, Bath-street, Largs.

Leigh (Lancs).—Chapel for the Trustees, United Methodist Church, Wigan-road, Leigh.

Linlithgow.—Factory (6,000*l.*) for Messrs. Newland & Sons, agricultural implement manufacturers, Provost-road, Linlithgow.

Liverpool.—Customs house at pierhead (100,000*l.*); H.M. Office of Works, Storey's-gate, Westminster, S.W.

Llandrindod Wells.—Additions to Pump House Hotel; Mr. B. L. Pritchard, architect, Castle-street, Brecon; Mr. C. Hopton, builder, Ridgebourne, Llandrindod Wells.

Luton.—Chapel, Reginald-street, for the Trustees, Old Baptist Union.

Maidstone.—Residence; Messrs. Lovegrove & Papworth, architects, 374, Old-street, E.C.: Guild of Decorators' Syndicate, builders, 29, Newman-street, W.

Masham.—Town Hall (3,000*l.*); Trustees of the late Lord Masham.

Menston.—Additions to hospital (3,000*l.*): Joint Isolation Hospital Committee, Guardians' Offices, Wharfedale.

Middlesbrough.—Bakery for Co-operative Society; Mr. W. E. Haslock, architect, Albert-road, Middlesbrough.

New Hartley.—Four hundred houses for the Seaton Delaval Coal Company, Ltd., Exchange-buildings, Newcastle.

Newport (Mon).—Additions to Metropolitan Bank of England and Wales; Mr. H. J.

* See also our list of Competitions, Contracts, etc., on another page.

Griggs, architect, Commercial-street, Newport; Mr. R. W. Moon, builder, 1, Park-square, Newport.

Pelton.—One hundred and ten houses; Mr. W. Ridley, Surveyor, Urban District Council Offices, Chester-le-Street.

Pendleton.—Buildings, Broad-street, for Messrs. Saunders & Warburton, corn merchants, 29, Broad-street, Pendleton. Alterations to Conservative Club, West-street, for the Secretary.

Pontypridd.—Church and institute (1,714*l.*); Mr. E. Rees, architect, Taff-street, Pontypridd; Messrs. E. Jones & Sons, builders, 23, Morgan-street, Pontypridd.

Prescot.—School (10,000*l.*); Dr. H. L. Snape, County Hall, Lancaster.

Preston.—St. Cuthbert's Church; Mr. Temple Moore, architect, 44, Bedford-row, W.C.

Queenborough (Kent).—Offices and tile works; Mr. W. L. Grant, architect, High-street, Sittingbourne; Mr. L. Seager, builder, London-road, Sittingbourne.

Rayne (Aberdeenshire).—Extensions to public schools (2,100*l.*); Messrs. D. & J. R. MacMillan, architects, 105, Crown-street, Aberdeen.

Redcar.—Court-house (1,200*l.*); Messrs. King & Sons, builders, King's-road, North Ormesby.

Salford.—Electric theatre, Trafford-road, for the proprietors. Alterations to workhouse, Eccles New-road; Clerk, Guardians' Offices, Salford. Alterations and additions to Town Hall (2,042*l.*); Messrs. J. Gerrard & Sons, Ltd., builders, Swinton, Manchester. Conveniences, Hope Schools, Eccles Old-road, Pendleton, and 329, Great Cheetham-street East, Broughton; Mr. Joseph Corbett, Engineer, Town Hall, Salford.

Seaton.—Church institute (2,500*l.*); Mr. W. Gush, Manor Office, Seaton.

Sedgefield.—Additions to workhouse; Mr. J. Stones, Surveyor, Council Offices, Sedgefield.

Sheffield.—Extensions at the Neepsend Power Station (6,750*l.*); Messrs. Abbott & Bannister, builders, 132 and 134, Machon-bank, Sheffield.

Sunderland.—Hospital (5,000*l.*); Messrs. W. & T. R. Millburn, Fawcett-street, Sunderland.

Swindon.—Church hall (2,000*l.*); Messrs. Bishop & Fisher, architects, Regent-circus, Swindon.

Tophill (Portland).—School (500 places); Mr. T. Brett, County Offices, Dorchester.

Torquay.—House, Barton (640*l.*); Mr. F. G. Moore, architect, 9, Fleet-street, Torquay; Messrs. R. F. Yeo & Sons, builders, 35, Torwood-street, Torquay.

Troon.—Church corner of St. Meddins-street and the South Beach (6,800*l.*); Messrs. Clifford & Lunan, architects, Glasgow.

Wednesbury.—Extensions to public buildings, Education offices and baths (8,500*l.*); Messrs. Guest and Sons, builders, Amblecote, Stourbridge.

Wellingborough.—Alterations and extensions to Park-street School (4,713*l.*); Messrs. E. Brown & Sons, Ltd., builders, Castle-street, Wellingborough.

Westhoughton.—School off Bolton-road (9,300*l.*); Dr. H. L. Snape, County Hall, Lancaster.

Whitley Bay.—School (11,000*l.*); Mr. G. T. Forrest, architect, Moot Hall, Newcastle; Mr. J. F. Newbould, builder, Tynemouth-road, North Shields.

Wigginton (Herts).—Alterations and additions to Church of England School; Mr. Huckvale, architect, Tring; Mr. G. Rowe, builder, Wigginton.

Wolverhampton.—Extensions to workshops at car depôt (5,860*l.*); Mr. G. Green, Engineer, Town Hall, Wolverhampton.

Yorkshire (East Riding).—Schools, Cottingham (3,693*l.*) and Howden (2,578*l.*); Mr. J. T. Levitt, builder, 84, Holderness-road, Hull.

Yorkshire (North Riding).—Tuberculosis hospital and extensions to asylum (1,185*l.*); Mr. W. Birch, builder, Barbican-road, York.

QUESTIONS IN PARLIAMENT.

In the House of Commons, Mr. Nannetti asked the President of the Board of Trade whether the building of the Labour Exchange offices in Dublin have yet been commenced; if not, what is the cause of the delay; and will he speed on the building of these long-delayed premises? Mr. Robertson, in a written reply, stated that he was informed by the Irish Department of Public Works that the plans of the permanent building for the Irish Divisional Office and Dublin Labour Exchange have been completed, and that tenders for the building will probably be called for in the course of a few days. As he had already informed the hon. member, the building is being erected by the owner of the site, and not by the Department of Public Works. Difficulties have been experienced in estimating the requirements of the combined Labour Exchange and Unemployment Insurance staff, which will be housed in the building, but he did not anticipate any further delay.

Captain Jessel asked the First Commissioner of Works if he can state whether funds will permit of permanent pavement being laid down at the bottom of St. James's-street, on that portion under the jurisdiction of the Office of Works, during the recess, in view of the strong representations from the Commissioner of Police and the Westminster City Council? In a written reply, Mr. Wedgwood Benn stated that the First Commissioner intends to carry out this work at an early date.

LONDON COUNCILS.

Barnet.—A Committee has been appointed to consider the question of town planning and to report thereon. The respective merits of paving with tarred stone and tar-spraying were reported on by the Surveyor, and it was decided to tar-spray Wood-street at an estimated cost of 50*l.* when a favourable opportunity occurred. Tenders are to be invited for demolishing the old Barnet Brewery. The question of the preparation of a scheme for dealing with the site is to be dealt with prior to advertising for architects' plans for the erection of new Council offices. Fresh tenders are to be invited for erecting twenty-two workmen's cottages in Totteridge-lane. The following plans have been passed:—Mr. E. G. W. Dawker, additions to the Old Ford Manor Golf Club House; Mr. T. Cude, six houses, Normandy-avenue; Mr. J. Hardy, motor garage, Oakhill, Bells-hill. A plan has been lodged by Mr. A. M. Ingham, for additions to the Constitutional Club.

Bethnal Green.—Dr. George Paddock Bate, in his annual Report on the sanitary condition and vital statistics of Bethnal Green which has just been issued, states that he had found since he last made a systematic house-to-house inspection under the Housing, Town-Planning, etc., Act, 1909, in the Digby-street district, that a large amount of repair work, including in many instances actual rebuilding, had been carried out, the chief defective portions remaining being a large block of back-to-back houses in Digby-street and Digby-walk, and the aged and worn-out condition of a number of other houses. On consideration he was not very hopeful that a new representation would be more successful than the previous one, but as a rehousing scheme for this district would give an opportunity for carrying out a much-needed public improvement, namely, the widening of Green-street, he requested the Public Health Committee to view the area with him. As the result of such visit it was decided to serve full notices under the Act of 1909, where necessary, and to exert pressure upon the owners of property to carry out extensive repairs. Ninety notices under sect. 15 were served with the result that a large amount of work had been carried out; most of the defective houses had been thoroughly stripped, walls and woodwork repaired, and afterwards papered and painted throughout. Nine old houses at the corner of Baker-street and Green-street had been pulled down. He regretted that, notwithstanding the strenuous efforts of the officers of the Public Health Department, the Brady-street district had steadily deteriorated since his last house-to-house inspection in 1904, prior to a representation of the area under the old Housing Act.

Finchley.—Negotiations have been going on for some time past between the District Council and the County Council *re* widenings in Great North-road, Ballards-lane, Regent's Park-road, and Woodhouse-road, and the District Council have now put forward proposals under Clause 37 of the County of Middlesex Light Railways Order, 1903. These proposals briefly are that the District Council is to be empowered to spend upon the carriageways up to 59,000*l.*, and on the footpaths up to 11,655*l.*, that the County Council is to pay such proportion of the cost (not less than half of the actual expenditure) as they pay to other districts in the county; also that the County Council is to make a contribution of a moiety of 3,000*l.* The District Council have passed plans for the new church of St. Barnabas, North Finchley.

Friern Barnet.—Plans and estimates by the Surveyor for the erection of fifteen workmen's dwellings in Sydney-road, at a cost of 3,150*l.*, have been approved.

Hornsey.—The Fire Brigade Committee, reporting on a new fire brigade scheme, recommended that a freehold site fronting Fortis Green be purchased for 920*l.*, and that a fire-station with station-officer's residence and separate residential quarters for five firemen should be erected thereon, at an estimated cost of 5,610*l.* Alterations were also proposed at the Central and South Harringay fire-stations at a cost of 170*l.* and 420*l.*, respectively. Alderman Grayson said it would be impossible to build a fire-station such as was required at Muswell-hill at less cost than that proposed. The Committee had already cut it down by 2,000*l.* by having a separate block for the firemen's dwellings. Alderman Sloper said the old station might be used some day for a branch library, or the Electricity Department might like to make certain developments. The Committee's recommendations were approved. Additional office accommodation is to be provided at the Electricity Works at an estimated cost of 150*l.* The tender of Messrs. William Griffiths & Co. has been accepted at 404*l.* for making up the passage-way at the rear of Royal-parade, Colney Hatch-lane. The following plans have been passed:—Mr. Oswald Archer, 101, Queen Victoria-street, E.C., Salvation Army hall, Tottenham-lane; Mr. C. J. Halsey, alterations and additions to No. 416, Archway-road, Highgate; Mr. Harold Baily, Park-road, alterations and additions to "Ellendale," Crescent-road, Crouch End; Mr. Frank Bethell, Enfield, shop and stores, Archway-road, Highgate; Mr. Frank Collins, Stanhope-road, alterations and additions to No. 12, Crescent-road, Crouch End; Messrs. Charles Samuel & Co., Ltd., Park-avenue South, alterations and additions to No. 94, High-street; Mr. Edward White, drainage work, etc., at No. 14, North-road, Highgate. A plan has been lodged by Messrs. W. H. Smith & Sons, for alterations and additions to No. 15, Queen's-parade, Muswell Hill-road, Muswell Hill.

Richmond.—Application is to be made to the Local Government Board for sanction to borrow 1,918*l.* for improvement works in Sheen-road and Warple-way. A sum of 3,250*l.* has been sanctioned by the Local Government Board for the extension of the Public Baths, and the Surveyor has been instructed to prepare detailed plans and specifications for the purpose of the work being put in hand, so as to have the extension ready for next season. The Street Improvement Committee have approved plans for three shops and a motor garage proposed to be erected on the site of Nos. 1 and 2, George-street. Plans have been passed for Messrs. Boore & Parker for the erection of three houses in North-road.

Watford.—The Urban District Council at their next meeting in September are to consider a proposal to purchase Dalton House, Watford.

FOREIGN AND COLONIAL.

Cement Trade of Dalmatia.

Mr. Vice-Consul Lucas-Shadwell, reporting on the trade of Dalmatia (Austria-Hungary), states that there are four cement factories in Dalmatia situated at or near Spalato. After having suffered for several years from the acute crisis through which the Austrian cement industry passed, the Dalmatian works are now, thanks to the "combine" in which they are associated with the other Austrian cement factories, doing satisfactory business. In 1911 the Dalmatian works produced 217,000 metric tons of cement, while the amount exported, according to the official statistics for 1910, the latest available, was 87,054 metric tons; in 1911 a much larger quantity must have been exported. Dalmatian cement is shipped to Trieste and to other ports along the Austrian coast, and also to Egypt, Turkey, Argentina, Brazil, India, and Russia. Vessels of the Austro-Americana Line call at intervals at Spalato to load cement for South American ports.

Building in New Zealand.

The issue of *New Zealand Shipping and Commerce* of June 14 states that the tender of a Wellington firm has been accepted for the erection of the new building of the Te Aro branch of the Bank of New Zealand. The building will be constructed of steel and reinforced concrete, with concrete floors and roof, and a lift will be provided for the upper floors, which will be let out as offices. The names of the successful tenderers and of the architects may be obtained by British manufacturers on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

Building and Paving Materials, Chile.

The *Diario Oficial* of June 13 publishes the text of a Bill under the terms of which the President of the Republic is authorised to contract, on behalf of the Municipality of Concepcion, a loan amounting to 100,000*l.*, bearing interest not exceeding 6 per cent. per annum, for the purpose of erecting new buildings, and also for the improvement, widening, and lengthening of streets, avenues, and squares in Concepcion.

BAPTIST CHURCH, ELTHAM PARK, KENT.

THIS building has recently been completed at a cost of 4,000*l*. It occupies an elevated site at the junction of West Mount-road and Glenure-road, Eltham. The original design (as it appeared in the Royal Academy Exhibition of 1911) included a massive tower, but sufficient funds were not forthcoming to erect this feature. The design, as carried out, is marked by good, simple lines, harmonious colour tones, and interesting materials. The walling is in "purple stock" bricks showing pleasing variety of colour. The stone dressings and window tracery are from Ridge Park, Corsham. The roof is covered with rustic tiles. Internally the walls are covered with rough plaster, the roof timbers stained with light brown solignum, the ceiling boards merely flat-varnished, the iron-work blacked. The seating, pulpit, and wall lining are in Canadian oak slightly darkened and dull wax-polished.

The baptistry is in white marble and tiles. The chancel steps are in white Mansfield stone, the floors of the chancel and lobbies in terrazzo. The aisles and vestries have wood-block floors. The windows have leaded glazing, with decorative insets of Norman slabs, etc. There is a small end gallery constructed of ferro-concrete, as also are the nave arcade and pillars. Four hundred and fifty sittings are provided, and the church is capable of future enlargement by extending the aisles, which at present are merely ambulatories. There are three capacious vestries and two sets of lavatories. Heating throughout by low pressure hot-water apparatus. Lighting by electricity with holophane fittings. Ventilation on the "Natural" system, with wall inlet panels (besides window casements) and roof extractors. The general contractors were Messrs. J. Garrett & Son, of Balham-hill, S.W. The architects were Messrs. John Wills & Sons, of Derby and London.

PATENTS.

APPLICATIONS PUBLISHED.*

17,223 of 1911.—John Wilson: Apparatus for use in building concrete structures.

18,053 of 1911.—Heinrich Korrodi: Light indicator for doors.

20,679 of 1911.—Engelbert Prosig: Machine for manufacture of artificial slates and such like.

20,701 of 1911.—James Lee: Houses, sheds, and like buildings.

21,689 of 1911.—Karl Freund and Robert Richard Kuhn: Means for fastening window-sashes.

23,227 of 1911.—David Campbell: Movable water-excluding bars for casement windows, sashes, and the like.

24,512 of 1911.—Edward Kersey: Flushing-tanks.

24,677 of 1911.—William Henry Roughsedge: Moulds for use in the construction of concrete buildings.

24,812 of 1911.—James Coster Edwards: Manufacture of imitation stone blocks.

28,888 of 1911.—George Charles Vernon-Inkpen: Concrete piles for foundations and similar purposes.

702 of 1912.—Curt Bernhard and Wilhelm Lever: Balusters.

1,802 of 1912.—Logan Willard Mulford: Pavement-light, floor-light, vault-light, and roof-light construction.

2,464 of 1912.—Samuel Spreckley: Stoves for greenhouses, boilers, or geysers for domestic and other purposes, and the like.

3,491 of 1912.—Heinz Brandenberg: Theodolites for measuring horizontal and vertical amgles.

4,482 of 1912.—Charles Christopher Braithwaite: Valves and apparatus for governing and controlling water supply as in irrigation works, town services, and similar purposes.

4,527 of 1912.—Heinrick Kuckenhöner: Washing machine for sand, gravel, or the like.

5,957 of 1912.—Thomas Mason: Window-holders for sliding sashes.

7,891 of 1912.—Heinrich Christian Ferron: Metallic roofing and the like.

9,506 of 1912.—William Roper: Metal casements.

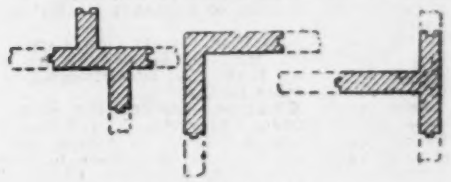
9,519 of 1912.—Albert George Monro: Guard for closet seats.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

SELECTED PATENTS.

7,487 of 1911.—Max Mannesmann: Building-blocks.

This relates to building-blocks of concrete which are made the thickness of the wall and

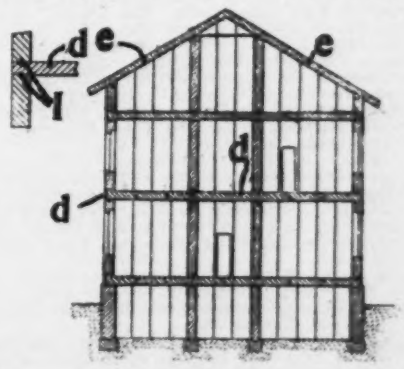


7,487 of 1911.

the height of a story, and of angle, T or + shape in plan or section, with limbs of equal or unequal length. The opposing limbs of the +-shaped blocks may be either in or out of line.

7,488 of 1911.—Max Mannesmann: Concrete buildings.

This relates to concrete-slab walls which are erected rapidly from slabs and angular corner

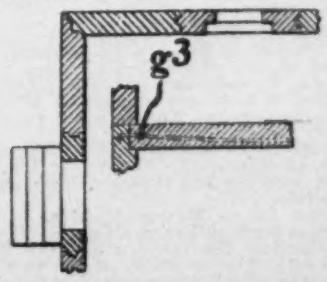


7,488 of 1911.

posts of the same height as the respective stories. The floor and roof slabs *d*, *e* are laid on the wall sections, and metal ties *l* are laid in grooves in all the horizontal joints, and cement is grouted in all the joints.

7,490 of 1911.—Max Mannesmann: Concrete buildings.

This relates to concrete buildings constructed



7,490 of 1911.

PATENTS—continued on page 218.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvi.; Auction Sales, xxii. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

AUGUST 30. — SAXON SHELL PRIZE. — Fifty guineas, with medal, is offered for essay on "The Lighting, Heating, etc., of an Operating-Room for a General Hospital." Particulars from the Sanitary Institute, 90, Buckingham Palace-road, S.W.

SEPTEMBER 1.—**Goole.**—MUNICIPAL OFFICES.—Premiums 30*l.* and 15*l.* Particulars from Mr. R. Tyson, Council Offices, Goole.

SEPTEMBER 9. — **Chorley.**—SCHOOL.—The Chorley Education Committee invite designs for Council school for about 500 children. See advertisement in issue of July 12. Premiums 30*l.*, 20*l.*, and 10*l.* Deposit, 2*l.* 2s.

SEPTEMBER 30.—**Dublin.**—UNIVERSITY COLLEGE: NEW BUILDINGS.—Limited to architects in Ireland. Assessor, Mr. H. T. Hare, F.R.I.B.A.

SEPTEMBER 30.—**Llanelly.**—SCHOOL, ETC.—The Llanelly Education Committee invite competitive designs and estimates for school buildings and domestic subjects centre at Stebonheath-terrace. Assessor, Mr. G. E. Halliday, F.R.I.B.A. See advertisement in issue of August 2 for further particulars.

* OCTOBER 14. — **Balham.**—SWIMMING BATH.—The Wandsworth B.C. invite designs for a Public Swimming Bath. See advertisement in this issue for further particulars.

OCTOBER 29.—**Glasgow.**—DESIGNS FOR EXTENSION OF MUNICIPAL BUILDINGS.—The Glasgow Corporation invite architects to submit preliminary sketch designs in competition for the extension of the Municipal buildings. Five will be selected to submit complete drawings in final competition. See advertisement in issue of July 12. Dr. Burnet, assessor. Deposit, 1*l.* 1s

OCTOBER 31. — **Huddersfield.** — TOWN PLANNING.—The Housing and Town Planning Committee of the Huddersfield Corporation invite designs for the laying-out of certain areas within the county borough and part of an adjacent suburb. Premiums 100gs., 50gs., and 25gs. Deposit of 2*l.* 2s. See advertisement in issue of August 2 for further particulars.

NOVEMBER 1.—**Ottawa.**—MONUMENT TO KING EDWARD VII.—Sketch models in plaster to be sent to the Director of National Art Gallery, Ottawa. Particulars from the Public Works Department, Ottawa (see p. 174).

DECEMBER 1.—**Bulgaria.**—DESIGNS FOR A ROYAL PALACE AND LAW COURTS.—Particulars from the Commercial Intelligence Branch of the Board of Trade, Basinghall-street, E.C. (see p. 173).

DECEMBER 2.—**Carlisle.**—SCHOOL BUILDINGS, ETC.—Particulars from the City Surveyor, 36, Fisher-street, Carlisle.

JANUARY 1, 1913. — **Rangoon.** — MUNICIPAL BUILDINGS.—The Committee of the Municipality of Rangoon invite designs for the new Municipal Buildings. Honoraria of 300*l.*, 200*l.*, and 100*l.* respectively for first, second, and third. See advertisement in issue of August 2 for further particulars.

NO DATE.—**Doncaster.**—SWIMMING BATH, ETC., FOR YORKSHIRE INSTITUTION FOR THE DEAF.—Premiums, 50*l.* Information from Mr. B. D. Crouch, 6, Hall-gate, Doncaster.

NO DATE.—**Jordanhill, Glasgow.**—PROPOSED TRAINING COLLEGE.—Limited to six firms, named in "Competition News," December 1, page 635.

NO DATE. — **Motherwell.**—HIGH SCHOOL.—Dr. Burnet, assessor. Premiums 50*l.*, 30*l.*, and 20*l.*

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

AUGUST 17.—**Exeter.**—HOMES.—The Guardians of the Poor of the Parish of Exeter invite tenders for the erection of Children's Homes. Plans, etc., may be seen, and quantities obtained, at the offices of their architect, Mr. R. M. Challice, 14, Bedford-circus, Exeter, upon payment of 1*l.* 1s.

AUGUST 19. — **Marshfield.** — HOUSES.—Four houses at Marshfield. Names to Mr. Walter Rosser, architect and surveyor, Risca and Newbridge (Mon).

AUGUST 19. — **Monmouthshire.** — SCHOOL WORKS. — Monmouthshire Education Committee invite tenders for carrying out the following work:—(1) The erection of a new public elementary school, to accommodate 700 children, at Phillipstown, New Tredegar; (2) the erection of a domestic arts centre at Abergavenny; (3) extensions and alterations to the Georgetown Girls' Council School, Tredegar. Plans, etc., may be seen, and bills of quantities (for the Phillipstown and Georgetown schools) obtained, at the office of Mr. John Bain, F.R.I.B.A., C.C. Offices, Newport, on payment of a deposit of 2*l.* 2s. in respect of the Phillipstown school and 1*l.* 1s. in respect of the Georgetown school (cheque only, made payable to the Monmouthshire Education Committee).

AUGUST 19. — **Pembury.** — REPAIRS — Kent Education Committee invite tenders for the execution of painting and repairs required to be carried out at Pembury Council school. Specifications, prepared by the Committee's Architect, Mr. Wilfrid H. Robinson, of Carlton House, Westminster, can be seen at the offices of the Correspondent, Mr. A. T. Simpson, 23, Church-road, Tunbridge Wells.

AUGUST 19.—**Pontefract.**—RESIDENCE.—Works required to be done in the erection and completion of a new residence, Pontefract-road, Purston, for Mr. Smurthwaite. Names to Mr. W. J. Tennant, architect and surveyor, Pontefract.

AUGUST 19.—**Treforest.**—CHURCH ADDITIONS.—Additions and alterations to Wesley Church, Treforest, for the Trustees. Plans, etc., may be seen, and form of tender obtained, upon application to Mr F. Hill, confectioner, Park-street, Treforest.

AUGUST 20. — **Beverley.** — COTTAGE WORKS.—Altering and enlarging two cottages, situate on the River Hull, near Hull Bridge and Hempholme Lock. Full particulars may be obtained on application to Mr. W. Evans, Surveyor, Newwalk, Beverley.

AUGUST 20. — **Chepstow.**—RECONSTRUCTION.—The Monmouthshire Territorial Force Association invite tenders for the reconstruction of premises at Chepstow, to be used as a drill hall. Plans, etc., may be seen, and copies of quantities obtained, at the office of the architects, Messrs. Habershon & Fawckner, F.R.I.B.A., 41, High-street, Newport, Mon, on payment of 2*l.* 2s.

AUGUST 20. — **Leeds.**—ALTERATIONS TO OFFICES.—Works required in the alterations to offices, Bedford-street, East-parade, Leeds, for the Leeds Board of Guardians. Plans, etc., on application to the architect, Mr. G. Fredk. Bowman, 5, Greek-street, Leeds.

AUGUST 20. —**Morval.** — FARM BUILDINGS.—Cornwall C.C. Small Holdings and Allotments Committee invite tenders for the erection of farm buildings and a dairy at Lydcott Farm, Morval. For plans, etc., apply to the County Land Agent, County Hall, Truro.

AUGUST 21. — **Aberdeen.** — JOINT PASSENGER STATION RECONSTRUCTION, CONTRACT No. 13.—Steel verandah platform roofs and a passenger footbridge at the north end of the new station. The drawings may be seen at the office of the Engineer, Mr. James A. Parker, 80, Guild-street, Aberdeen, where copies of the specification, etc., can be obtained on payment of 1*l.* 1s.

AUGUST 21. — **Basingstoke.** — REPAIRS.—Internal and external repairs, decoration, redrainage, and conversion into weights and measures office, The Danes. Plans, etc., at the offices of Mr. W. J. Taylor, County Surveyor, The Castle, Winchester. Deposit of 10s. 6d. for specifications, etc., by cheque, payable to Hants C.C., and crossed "Capital and Counties Bank."

* AUGUST 21.—**Lewisham.**—DEMOLITION.—The Lewisham B.C. invites Tenders for purchase and pulling down of buildings known as the Council's place of shelter, adjoining cemetery, Verdant-lane. See advertisement in this issue for further particulars.

AUGUST 21.—**Lower Penarth.**—WORKS EXTENSION.—The Directors of the South Wales Portland Cement and Lime Company, Ltd., invite tenders for Contract No. 3 of the proposed extensions of their works at Lower Penarth, near Cardiff. Plans, etc., can be seen, and bills of quantities obtained, at the office of Mr John W. Rodger, architect, 14, High-street, Cardiff, upon deposit of 5*l.*

AUGUST 22. — **Cardiff.** — CHAPEL.—New chapel, Pomeroy-street, Bute Docks, Cardiff, for the Trustees of the Mount Stuart Welsh Congregational Church. Plans, etc., may be seen, and bills of quantities obtained, on payment of 1*l.* 1s. deposit at the offices of the architects, Messrs. James & Morgan, Charles-street-chambers, Cardiff.

AUGUST 22.—**Rawtenstall.**—ERECTION OF COTTAGES ON CARR FARM ESTATE.—The Corporation invite tenders for the materials and labour required in the erection of cottages on Carr Farm Estate, Rawtenstall. Plans may be seen, and forms of tender, etc., obtained, on application to Mr. James Johnson, Borough Surveyor, Rawtenstall, on payment of 2*l.* 2s.

AUGUST 23. — **Southampton.** — OFFICES, ETC.—Proposed new offices, central and mobilisation stores, Carlton-terrace, Southampton. The drawings, etc., may be seen at the offices of the architect, Mr. R. H. P. Bevis, A.R.I.B.A., Elmgrove-chambers, Southsea. Bills of quantities upon payment of the sum of 2*l.* 2s

AUGUST 23. — **Sowerby Bridge.**—REINSTATING AFTER FIRE. — Masons', carpenters and joiners', ironfounders', slaters and plasterers', and plumbers' work required in reinstating after fire at Lower Willow Hall Mills, Sowerby Bridge. Plans may be seen, and bills of quantities obtained, at offices of Messrs. Richard Horsfall & Son, architects and surveyors, 22A Commercial-street, Halifax.

AUGUST 26. — **Dublin.** — STABLES, ETC.—The Paving Committee of the Dublin Corporation invite tenders for the building of new stables at their depôt in East Hanover-street in accordance with plans, etc., by the City Architect, which may be inspected in his office, Municipal Buildings, Cork-hill, Dublin. Copies of bills of quantities, etc., may be obtained at the office of the City Treasurer, Municipal Buildings, Cork-hill, Dublin, on payment of 2*l.*

AUGUST 26.—**Tredegar and Beaufort.**—ALTERING, ETC.—Altering and repairing the following hotels for Messrs. A. Buchan & Co., Rhymney:—Tredegar Arms, Tredegar; Beaufort Inn, Beaufort. Plans, etc., may be seen at each of the hotels or at office of Mr. Thomas Roderick, architect, Clifton-street, Aberdare, where bills of quantities may be obtained.

* AUGUST 27. — **Manchester.** — ALTERATIONS, ETC., TO COUNTY COURT.—The Commissioners of H.M. Works, etc., invite tenders for alterations and additions to Manchester County Court. See advertisement in this issue for further particulars.

AUGUST 27. — **Pembroke Dock.** — ELECTRIC THEATRE.—An electric theatre in Pembroke Dock, South Wales. Plans, etc., can be obtained from Mr. A. Claypoole, Starbuck House, Milford Haven, on deposit of 1*l.* 1s.

* AUGUST 29.—**Birmingham.**—SUBWAYS.—The Commissioners of H.M. Works and Public Buildings invite tenders for subways at Telegraph Stores. See advertisement in this issue for further particulars.

* AUGUST 29.—**East Barnet.**—ALTERATIONS AND ADDITIONS.—The Herts C.C. Education Committee invite tenders for alterations and additions at Brunswick Park C.C. School. See advertisement in this issue for further particulars.

AUGUST 29. — **Northwich.** — BATHS. — The U.D.C. invite tenders for the erection of public baths and washhouses. Particulars, etc., will be forwarded upon an application being made to the Clerk of the Council, accompanied by a deposit of 2*l.* 2s.

AUGUST 29.—**Portland.**—FRIAR WADDON PUMPING STATION, UPWEY.—The U.D.C. invite tenders for the erection of a brick pumping station and foreman's cottage near the Friar Waddon-road, Upwey. Plans may be seen, and copies of the specification, etc., obtained, at the office of Mr. R. Stevenson Henshaw, Waterworks Engineer, Council Offices, Portland, on payment of a deposit of 3*l.*

AUGUST 31. — **Aberystwyth.** — WORKMEN'S DWELLINGS.—The time for delivery of tenders for the works (Militia Barracks scheme) has been extended from August 8 to August 31.

AUGUST 31. — **Gloucester.**—WORKHOUSE.—New Infirmary in Great Western-road, Gloucester. Names to the architect, Mr. Walter B. Wood, A.R.I.B.A., 12, Queen-street, Gloucester.

AUGUST 31.—**Hyde.**—PUBLIC HALL.—The Corporation invite tenders for the erection of a public hall, police-courts, offices, and other works in Corporation-street, Water-street and Greenfield-street, Hyde. Plans, etc., may be seen, and quantities, etc., obtained, on application at the office of the Borough Surveyor, Mr. James Diggle, A.M.Inst.C.E., Town Hall, Hyde, on payment of 3*l.* 3s.

AUGUST 31. — **Potterhanworth.**—COTTAGES.—Branston R.D.C. invite tenders for the erection of eight cottages at Potterhanworth. Plans may be seen, and copies of the specifications, etc., obtained, upon application to the Surveyor, Mr. Thos. R. Howitt, 73, St. Catherine's-grove, Lincoln. A deposit of 1*l.* will be required.

AUGUST 31. — **Tipton.** — ENGINE AND BOILER HOUSE.—Tipton U.D.C. invite tenders for the erection of engine and boiler house, etc., at the Tipton Gasworks. Specification, etc., can be obtained on application to Mr. Sidney O. Stephenson, Engineer, Gasworks, Tipton.

SEPTEMBER 1.—**Minehead.**—CONVENIENCE.—The U.D.C. invite tenders for the erection of convenience and ladies' cloakroom on the sea front, Minehead. Specification, etc., may be obtained, and drawings inspected by appointment, on deposit of 2*l.* 2s. with the Clerk to the Council, 3, Banks-street.

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

* SEPTEMBER 2.—**Brentwood.**—ENLARGEMENT OF POST-OFFICE.—The Commissioners of H.M. Works, etc., invite tenders for the enlargement of the Brentwood Post-Office. See advertisement in this issue for further particulars

SEPTEMBER 2. — **Dartford.** — WORKS. — The Guardians invite tenders for the execution of certain works at the Workhouse, West-hill, Dartford. Plan, etc., may be seen at the offices of Messrs. Tait & Hobbs, architects, Lowfield-street, Dartford, from whom forms of tender may be obtained.

* SEPTEMBER 3. — **Barnet.** — COTTAGES.—The Barnet U.D.C. invite tenders for workmen's dwellings in Totteridge-lane. See advertisement in this issue for further particulars.

* SEPTEMBER 4.—**Leeds.**—TELEPHONE EXCHANGE. —The Commissioners of H.M. Works, etc., invite tenders for the erection of Leeds new Telephone Exchange. See advertisement in this issue for further particulars.

SEPTEMBER 6.—**Bolton-on-Dearne.**—SCHOOL.—The West Riding Education Committee invite whole or separate tenders for Bolton-on-Dearne new school (builder, joiner, slater, plumber, plasterer, painter, ironfounder and smith, and asphalter). Plans may be seen and specifications, etc., obtained, on application to the Education Architect, County Hall, Wakefield. A sum of 1*l.* must be sent by separate letter to the West Riding Treasurer, County Hall, Wakefield.

SEPTEMBER 6.—**Golcar.**—SCHOOL ADDITIONS.—The West Riding Education Committee invite whole or separate tenders for the following works:—Golcar: Crow-lane Council school—additional classroom (builder, joiner, slater, plumber, plasterer, and painter). Plans may be seen, and specifications with quantities obtained, on application to the Education Architect, County Hall, Wakefield: A sum of 1*l.* must be sent by separate letter to the West Riding Treasurer, County Hall, Wakefield

* SEPTEMBER 11.—**Portsmouth.**—BOILER-HOUSE, ETC.—The Portsmouth Guardians invite tenders for (*a*) boiler-house, coal store, and heater-room on the Hennebique system; and (*b*) chimney-shaft with annular water tank on the mono shaft system. See advertisement in this issue for further particulars.

* SEPTEMBER 12. — **Clapton.** — ELECTRICITY WORKS EXTENSION.—The Hackney B.C. invite tenders for extension of Electricity Works at Millfields-road, Clapton, N.E. See advertisement in this issue for further particulars.

* SEPTEMBER 12.—**West Ham.**—ERECTION OF WORKSHOPS.—The West Ham Guardians invite tenders for the erection of workshops on a site adjoining the Receiving Homes, Aldersbrook-road, Wanstead. See advertisement in this issue for further particulars.

* SEPTEMBER 18.—**Dublin.**—NEW PUBLIC OFFICES.—The Commissioners of Public Works, Dublin, invite tenders for new public offices, Upper Merrion-street. See advertisement in this issue for further particulars.

* SEPTEMBER 21.—**Biggin Hill.**—SCHOOL.—The Kent Education Committee invite tenders for new Council school at Cudham, Biggin Hill. See advertisement in this issue for further particulars.

NO DATE. — **Craghead.** — HOUSES — Twenty houses at Craghead, for Messrs. Thos. Hedley & Brothers. Names and addresses to the architect. Mr. J. Wm. Rounthwaite, A.R.I.B.A., 13, Mosley-street, Newcastle-on-Tyne.

NO DATE. — **Morriston.** — HOUSES.—Twenty houses, with a prospect of completing the estate of 100 houses, Cwmrhydycrw-road, Morriston, near Swansea. Messrs. F. W. Berk & Co., Ltd., 1, Fenchurch-avenue, London, E.C

NO DATE.—**Stafford.**—PREMISES.—The Committee of the Stafford Industrial Co-operative Society, Ltd., invite tenders for new central premises, in Salter-street, Stafford. Names to the architect, Co-operative Wholesale Society, Ltd., 1, Balloon-street, Manchester, along with a cheque for 2*l.* 2*s.*

NO DATE.—**Troedyrhiw.**—ALTERATIONS, ETC.—Alterations, repairs, and renovations to No. 50, Bridge-street, Troedyrhiw. Plans, etc., may be seen at the offices of Messrs. Johnson & Richards, architects, Merthyr Tydfil.

NO DATE.—**Yeovil.**—ELECTRIC THEATRE.—Electric theatre in Yeovil, for Mr. Albany Ward, of Weymouth. Names and addresses to Mr. P. B. Rigg, architect, Frome. A deposit of 2*l.* 2*s.* for bills of quantities.

ENGINEERING, IRON, AND STEEL.

AUGUST 20.—**London.**—GIRDERS.—The Secretary of State for India in Council invites tenders for the supply of girders. The conditions of contract may be obtained on application to the Director-General of Stores, India Office, Whitehall, S.W.

AUGUST 21.—**Droylsden.**—SEWAGE CARRIER.—The U.D.C. invite tenders for the construction of a steel girder sewage carrier over a railway. Plans, etc., may be inspected, and form of tender and bill of quantities obtained, upon application to Mr. Charles Hall, Surveyor to the Council.

AUGUST 21.—**Hove.**—PIERS.—Dwarf wall piers and cast-iron railing (about 417 lin. ft.), on the west side of St. Ann's Well-gardens, fronting Somerhill-road. Drawings, etc., may be seen, and forms of tender obtained, at the office of the Borough Surveyor, Mr. H. H. Scott

AUGUST 23.—**Batley.**—HIGH-TENSION CABLE.—The Council invite tenders for the supply, delivery, and laying of high-tension cables Specifications, etc., may be obtained from Mr. S. Derwen Jones, Borough Electrical Engineer, Electricity Works, Batley, on the payment of 1*l.* 1*s.*

AUGUST 23.—**New Wath.**—BRIDGE.—Whitby R.D.C. invite tenders for the construction of a new stone road bridge at New Wath, near Goathland. Drawings, etc., may be seen at the office of Mr. A. E. Young, Architect and Surveyor, 77, Baxtergate, Whitby.

AUGUST 23.—**Richmond, Yorkshire** — HEATING.—Heating by hot water the Richmond Union Vagrant Wards and laundry drying-room. Plan, etc., can be seen at the Workhouse.

AUGUST 24. — **Manchester.** — BOILER.—The Waterworks Committee invite separate tenders for one Lancashire steam boiler, with superheater, mechanical stoker, fuel economiser, steam and feed pipes, etc., and for two sets of vertical steam pumping engines, to deliver against a pressure of 1,120 lb. per square inch. Specification, etc., may be obtained on application to the Secretary, Waterworks Offices, Town Hall, Manchester, on payment of 1*l.* 1*s.* per copy.

AUGUST 24.—**Manchester.**—BRIDGE REPAIRS.—Manchester Corporation Paving, Sewering, and Highways Committee invite tenders for repairs to various bridges. Specification, etc may be obtained on application at the City Surveyor's Office, Town Hall, Manchester, on payment to the City Treasurer of 2*l.* 2*s.* All cheques or postal orders are to be made payable to the order of "The Corporation of Manchetser."

AUGUST 24.—**Plymouth.**—BARGE.—The Corporation of Plymouth invite tenders for the supply and delivery, at Plymouth, of a steel or iron bottom discharging hopper barge. Mr. James Paton, Borough Engineer and Surveyor, Municipal Offices, Plymouth.

AUGUST 26. — **Warrington.** — RAILINGS.—The Finance and Estate Committee invite tenders for cast-iron railings and two gates. Drawings, etc., may be seen, and forms of tender, etc., obtained, at the office of the Borough Surveyor, Town Hall.

* AUGUST 28.—**Fulham.**—LAUNDRY MACHINERY. —The Metropolitan Asylums Board invite tenders for installation of laundry machinery at the Western Fever Hospital, Seagrave-road See advertisement in this issue for further particulars.

AUGUST 29. — **Wellington, Somerset.**—HORNSHAY BRIDGE.—The District Councils invite tenders for the taking down and rebuilding of Hornshay Bridge. Drawings, etc., may be seen at the office of the Clerk to the R.D.C., Wellington. Bills of quantities on payment of 1*l.* 1*s.*

SEPTEMBER 2.—**Worthing.**—EXTENSION OF PIER. —The Directors of the Worthing Pier Company, Ltd., invite tenders for the taking down, widening, and reconstruction of a portion of the sea pier at Worthing. The drawings, etc., may be seen, and copies of the bills of quantities obtained, at the office of the engineers, Messrs. James Mansergh & Sons, 5, Victoria-street, Westminster, on the deposit of cheque or banknote for 5*l.*

SEPTEMBER 4. — **Birmingham.** — STEEL SUPERSTRUCTURE. — The Great Western Railway Directors invite tenders for the supply and erection of the steel superstructure to bridge over Sandy-lane, Birmingham. Plans, etc., may be seen, and forms of tender, etc., obtained, at the office of the Resident Engineer at Snow-hill Station, Birmingham.

SEPTEMBER 4. — **Clacton.** — PUMPING MAIN.—Clacton U.D.C. invite tenders for supplying and laying about 1,266 yds. of 11-in. cast-iron pumping main. Copies of the specification, etc., may be obtained, upon payment of 1*l.* 1*s.*, from the Engineer, Mr. Sydney Francis, A.M.Inst.M.E., Town Hall-buildings, Clacton-on-Sea.

FURNITURE, PAINTING, MATERIALS, etc.

AUGUST 19.—**Barnsley.**—PAINTING, ETC.—The Guardians of the Barnsley Union invite tenders for painting, colour washing, and cleaning the internal and external wood and iron work of the Union and Relief Offices, Pitt-street, Barnsley. Particulars, etc., may be obtained on application at the Clerk's Offices, Union Offices Pitt-street, Barnsley.

AUGUST 19.—**Halifax.**—PAINTING.—The Health Committee of the Halifax Corporation invite tenders for the painting work required at the Health Depôt, Hall-street, and to various urinals. Specifications may be seen, and forms of tender obtained, on application to Mr James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1*l.*

AUGUST 19.—**Kirkbride.**—PAINTING.—Wigton R.D.C. invite tenders for the painting of the bridge over the Wampool at Kirkbride Specifications may be inspected at the office of the Surveyor of the Council, George-street, Wigton

AUGUST 20.—**Wesham.**—DECORATING OFFICES.—Decorating the Union Offices, Wesham. Specification can be seen at the offices of Mr. Fred H. Brown, Clerk to the Guardians, at Wesham.

AUGUST 21.—**Nottingham.**—CLEANING, ETC.—The Markets and Fairs Committee are prepared to receive tenders for cleaning and painting fences, etc., at Cattle Market; Weights and Measures Office, Exchange-alley; Public Weigh Offices, Trent Bridge and Greyfriar-gate Specifications, etc., may be obtained from the office of Mr. Frank B. Lewis, City Architect, Guildhall, on payment of a deposit of 1*l.* 1*s.*

AUGUST 22.—**Keighley.**—DECORATING.—Decorating a large chapel at Keighley. Written applications for specification, etc., to be made to Mr. Wilson Bailey, architect, 48, Devonshire-street, Keighley.

AUGUST 23. — **Manchester.** — PAINTING.—The Parks Committee invite tenders for painting, etc., at the Clayton and Cambrian-street Recreation Grounds and George-street and Delamere-street Recreation Grounds. Specifications may be obtained at the office of the City Architect, Town Hall, upon payment to the City Treasurer of 10*s.* 6*d.* for each copy. All cheques or postal orders are to be made payable to the order of "The Corporation of Manchester," and crossed.

AUGUST 23. — **Wolsingham.** — PAINTING.—For painting and renovation of the Wolsingham Primitive Methodist chapel and schoolroom. Specifications may be seen on application to Mr. John Butterill, Front-street, Wolsingham, S.O.

AUGUST 24. — **Cardiff.** — PAINTING. — The Guardians invite tenders for internal painting at Cardiff Workhouse. Specification, etc., may be obtained from Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff

AUGUST 27. — **Manchester.** — PAINTING.—The Corporation Tramways Committee invite tenders for the painting of the exterior of the car-shed, car works, permanent-way buildings, etc., situate at Hyde-road, Manchester. Specification, etc., may be obtained on application to Mr. J. M. McElroy, General Manager, Corporation Tramways, 55, Piccadilly, Manchester, on deposit of 1*l.* 1*s.*

AUGUST 28. — **Manchester.** — ELECTRIC-LIGHT FITTINGS.—The Education Committee invite tenders for providing and fixing electric-light fittings at the Atherton-street Municipal School, Deansgate, Manchester. A copy of the specification and quantities may be obtained at the Education Offices, Deansgate, Manchester, on a deposit of 1*l.* 1*s.*

AUGUST 29.—**Newhaven.**—GRANITE, ETC.—The R.D.C. invite tenders for about 530 tons of flake granite, and alternative tenders for 530 tons of 2-in. broken Kentish ragstone. Mr. Herbert W. Coupe, Clerk to the Council, Union Offices, Newhaven, Sussex.

ROADS, SANITARY AND WATER WORKS.

AUGUST 19. — **Birmingham.** — PAVING.—The Public Works Committee invite tenders for the laying of wood and granite pavements in Lodge-road (Hockley), Bennett's-hill, Great Charles-street, Landor-street, and Arden-road. The drawings may be seen, and specification, etc., obtained, at office of Mr. Henry E. Stilgoe, City Engineer and Surveyor, the Council House, Birmingham, on payment of a deposit of 2*l.*

AUGUST 19.—**Romford.**—DRAINS.—The R.D.C. invite tenders for the construction of about 425 yds. of 12-in. surface-water drain in Brentwood-road, Hornchurch; about 82 yds. of 6-in. surface-water drain in Beaconsfield-terrace, Chadwell Heath; and about 113 yds. of 6-in. sewer in Willow-road, Chadwell Heath. Specifications, etc., may be seen, and particulars obtained, on application to Mr. W. J. Grant, Surveyor to the Council, Victoria-chambers, Romford.

AUGUST 21.—**Chapel-en-le-Frith.**—CHAPEL-EN-LE-FRITH AND WORMHILL WATER, DOVE HOLES RESERVOIR.—The R.D.C. invite tenders for the construction of a concrete service reservoir at Dove Holes, near Buxton. Plans etc., by the Council's Engineers, Messrs. Brady & Partington, A.MM.Inst.C.E., Town Hall, Chapel-en-le-Frith, may be seen, and the conditions of contract, etc., obtained, on deposit of cheque for 2*l.* 2*s.*

AUGUST 22. — **Blagdon.** — WATER WORKS.—Axbridge R.D.C. invite tenders for laying about 2,200 yds of 3-in. cast-iron pipes (Aldwick extension). Plan, etc., can be seen at the office of the Engineer, Mr. Arthur Powell, M.Inst.C.E. Bill of quantities can be obtained on payment of 10*s.* 6*d.*

AUGUST 23. — **Tavistock.**—DRAINAGE.—Reconstruction of the drainage system at the Union Workhouse, Tavistock. Plans, etc. may be seen at the office of Mr. F. Camble, Drake-road, Tavistock, and bills of quantities obtained on payment of a deposit of 2*l.* 2*s.*

AUGUST 24.—**Blackburn.**—CASTINGS, ETC.—The Waterworks Committee invite tenders for the necessary castings, valves, etc., required for the Parsonage Reservoir. Plans, etc., can be obtained on application at office of Mr. William Stubbs, C.E., Borough Engineer, Municipal Offices, Blackburn.

AUGUST 26. — **Altofts.** — FOOTPATH.—Altofts U.D.C. invite tenders for the construction of a new footpath in Church-road, Altofts. Plans, etc., may be seen, and bills of quantities obtained from the Surveyor at the District Council Office, Altofts.

AUGUST 29. — **Saltash.** — MAKING-UP. — The Saltash Urban Sanitary Authority invite tenders for making-up Victoria-road and Back-lane and Windsor-terrace Back-lane. Plans etc. may be seen at the Surveyor's Office, the Guildhall, Saltash.

AUGUST 30. — **Sandown.** — SEWER.—The Sandown U.D.C. invite tenders for works to be done and materials to be supplied in laying a stoneware pipe sewer from the sewage tanks to Carter-street. Plans, etc., may be seen at the office of the Surveyor of the Council, at the Town Hall, Sandown.

AUGUST 30. — **Walthamstow.** — ASPHALT MACADAM. — Trinidad asphalt macadam and Trinidad Lake bitumen. Form of tender, etc., may be obtained at the office of Mr. E. Morley, Surveyor to the Council, Town Hall, Walthamstow.

AUGUST 31. — **Dorking.** — TAR MACADAM.—The U.D.C. invite tenders for slag tar macadam for surfacing 4,043 sq yds. of road. Specification, etc., may be obtained on application to the Town Surveyor, Mr. William A. Clegg, M.Inst.M. and Cy.E.

AUGUST 31. — **St. Columb Major.**—SEWERS.—The R.D.C. of St. Columb Major invite tenders for constructing sewers and underdrains and laying-out irrigation ground and other work in connexion with the sewerage of St. Columb Major, according to plans, etc., prepared by Mr.

ROADS, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

R. Hansford Worth, M.Inst.C.E., of Plymouth, at whose office or at the Council Offices, St. Columb, plans may be seen.

SEPTEMBER 6. — **Southend-on-Sea.** — SOUTHCHURCH AND THORPE HALL BOULEVARD.—Road and formation works. Plans may be inspected, and form of tender, etc., obtained, on application to the Borough Engineer, Mr. Ernest J. Elford, M.Inst.C.E., Municipal Buildings, Clarence-road, Southend-on-Sea, and on payment of a deposit of 5*l.* 5s.

SEPTEMBER 9. — **Tredegar.** — SEWERS.—The U.D.C. invite tenders for the construction of subsidiary sewers in their district (three contracts). Plans may be inspected at the office of the Engineer to the Council, Mr. Wm. Lloyd Roach, Bedwellty House, Tredegar. Copies of the specification, etc., can be obtained from Mr. H. J. C. Shepherd, Clerk to the Council, Tredegar, on making a deposit of 5*l.* 5s.

SEPTEMBER 21. — **Andover.** — PURIFICATION WORKS: CONTRACT No. 2.—The Corporation invite tenders for the construction of screen chamber, engine-house, suction tank, 9-in. rising main, etc., in accordance with the specification and drawings prepared by Messrs. John Taylor, Sons, & Santo Crimp, civil engineers, Caxton House, Westminster, S.W. Specification, etc., upon payment of 5*l.* (cheque only).

SEPTEMBER 24.—**Lewes.**—SEWERAGE AND SEWAGE DISPOSAL WORKS: CONTRACT No. 2.—The Corporation of Lewes invite tenders for construction of main intercepting sewers and for the construction of sewage disposal works. The general conditions, etc., may be obtained, and drawings inspected, at the office of the engineers, Messrs. Brierley, Holt, & Co. (Arthur Hindle, M.Inst.C.E., and P. Holt Whitaker, A.M.Inst.C.E.), 46, Abingdon-street, Blackpool, upon receipt of a deposit of 5*l.* 5s. One of the engineers will be in attendance at the Town Hall, Lewes, to meet intending contractors on August 20, 21, and 22.

OCTOBER 9.—**Bradford.**—ESHOLT SEWAGE DISPOSAL WORKS: CONTRACT No. 21.—Circular outfall sewer in tunnel, from Frizinghal to Strangford, 10ft. in diameter and 4,807 yds or thereabouts in length, together with two shafts. Drawings may be seen, and copies of specification, etc., obtained, at the offices of either Mr. James Watson, M.Inst.C.E., Waterworks Engineer, Town Hall, Bradford, or Mr. Joseph Garfield, A.M.Inst.C.E., Sewage Works Engineer, Esholt Hall, near Shipley (station Apperley Bridge, Midland Railway), on payment of the sum of 5*l.* 5s.

NO DATE. — **Weston-super-Mare.** — PIPES.—Supply and delivery at Weston-super-Mare Station of about 185 tons of 5-in. and 4-in. cast-iron socketed water pipes. Forms of tender and all particulars may be obtained at the office of Mr. Harold A. Brown, Engineer to the Council, Town Hall, Weston-super-Mare.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*DRAUGHTSMAN	Metropolitan Asylums Board	125*l.* per annum	Aug. 23
*HIGHWAY SURVEYOR	Watford U.D.C.	150*l.* per annum	Aug. 24
*ARCHITECTURAL ASSISTANT	County of Hereford	150*l.* per annum	Sept. 2

Auction Sales.

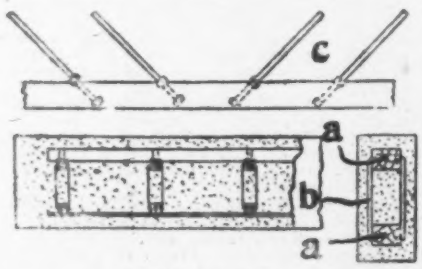
Nature and Place of Sale.	By whom Offered.	Date of Sale.
*BUILDING PLANT, BOURNEMOUTH—On the Premises	Fox & Sons	Aug. 20
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	Aug. 28
*STOCK OF BRICKS, TILES, ETC., CHELMSFORD—On the Premises	G. B. Hilliard & Son	Aug. 28

PATENTS—*continued from page 215.*

of studs and slabs of the same height as the stories wherein the floors and roof are cast *in situ*, the reinforcements being secured to hooks or eyes g^3, cast in the slabs. Corbels or rabbets are provided under the edges of the floors, and the door and window openings are formed in the slabs. The slabs are tongued and grooved on the square or bevelled vertical edges.

5,508 of 1911.—Gerald Otley Case: Reinforced concrete constructions.

This relates to skeletons as used in reinforced concrete constructions which consist of wooden lattice girders in flat or box form, the

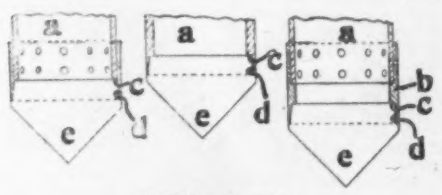


5,508 of 1911.

diagonals being made of wood or metal. The frame consists of two longitudinal wooden bars *a*, and diagonal metal dogs *b*; the lower bar may be strengthened by combining with it the trussed bar *c*. A continuous bar may be used instead of the separate dogs.

6,500 of 1911.—John Murray Leighton: Piles.

This relates to preparatory hollow piles which are made with no internal projections, the driving-shoulder which bears on the driving-shoe being formed by enlarging the bore of the tube, or a sleeve on the tube,



6,500 of 1911.

internally, and bringing it to a sharp lower edge. A sleeve *b* on the tube *a* is internally enlarged to form a shoulder *c* for the point *e*, and has a conical portion *d* which provides a comparatively sharp edge. The shoulder is not always square, a curved driving-face being sometimes used.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and not to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

PRICES CURRENT OF MATERIALS.

***** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.**

BRICKS, &c.

Per 1000 Alongside, in River.	£ s. d.
Best Stocks	1 14 0
Picked Stocks for Facings	2 10 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Flettons	1 13 0	Best Blue Pressed Staffordshire	3 15 0
Best Fareham Red	3 12 0	Do. Bullnose	4 0 0
Best Red Pressed Ruabon Facing	5 0 0	Best Stourbridge Fire Bricks	4 0 0
GLAZED BRICKS—			
Best White, Ivory, and Salt Glzd. Str'tch'rs	12 7 6	Double Headers	14 17 6
Headers	11 17 6	One Side and two Ends	18 17 6
Quoins, Bullnose, and 4½ in. Flats	15 17 6	Two Sides and one End	19 17 6
D'ble Stretchers	17 17 6	Splays & Squints	17 7 6

Second Quality £1 10s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 9	per yard, delivered.
Thames Ballast	5 6	" "
Best Portland Cement	34 0	per ton, "
Best Ground Blue Lias Lime	19 0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 13s. 0d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 7½
Do. do. delivered on road waggons, Nine Elms Depôt	1 9½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 3
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 4½

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Closeburn Red Freestone	2 0
Beer in blocks	1 6	Red Mansfield Freestone	2 4
Greenshill in blocks	1 10	Talacre & Gwespyr Stone	2 4
Darley Dale in blocks	2 4		
Red Corsehill in blocks	2 3		

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s. d.
Scappled random blocks	2 10
Per Ft. Super., Delivered at Railway Depôt.	
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3
6 in. rubbed two sides ditto, ditto	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 3½ in. sawn one side slabs (random sizes)	0 7
1½ in. to 2 in. ditto, ditto	0 6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.	s. d.
Scappled random blocks	3 0
Per Ft. Super., Delivered at Railway Depôt.	
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto	3 0
3 in. sawn two sides slabs (random sizes)	1 2
2 in. self-faced random flags	0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20×10 best blue Bangor	13 2 6	20×10 best Eur'ka unfading green	15 17 6
20×12 ditto	13 17 6	20×12 ditto	18 7 6
20×10 1st quality ditto	13 0 0	18×10 ditto	13 5 0
20×12 ditto	13 15 0	16×8 ditto	10 5 0
16×8 ditto	7 5 0	20×10 permanent green	11 12 6
22×10 best blue Portmadoc	12 12 6	18×10 ditto	9 12 6
16×8 ditto	6 12 6	16×8 ditto	6 12 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Hartshill" brand, plain sand-faced (per 1000)	45 0
Hip and Valley (per doz.)	3 7	Do. pressed (per 1000)	42 6
Best Broseley (per 1000)	50 0	Do. Ornamental (per 1000)	47 6
Do. Ornamental (per 1000)	52 6	Hip (per doz.)	4 0
Hip and Valley (per doz.)	4 0	Valley (per doz.)	3 6
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57 6	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental (per 1000)	60 0	Hand-made sand-faced (per 1000)	45 0
Hip (per doz.)	4 0	Hip (per doz.)	4 0
Valley (per doz.)	3 0	Valley (per doz.)	3 6

WOOD.

BUILDING WOOD.	At per standard.					
	£	s.	d.		£	s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	...	15	10 0
Deals: best 3 by 9	13	10	0	...	14	10 0
Battens: best 2½ in. by 7 in. and 8in., and 3 in. by 7 in. and 8 in.	11	10	0	...	12	10 0
Battens: best 2½ by 6 and 3 by 6	0	10	0		less than 7 in. and 8 in.	
Deals: seconds	1	0	0		less thn best.	
Battens: seconds	0	10	0		"	"
2 in. by in. and 2 in. by 6 in.	9	10	0	...	10	10 0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	...	10	0 0
Foreign Sawn Boards—1 in. and 1¼ in. by 7 in.	0	10	0		more than battens.	
¼ in.	1	0	0		"	
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft.					
	5	0	0	...	5	10 0
Seconds	4	10	0	...	5	0 0
Small timber (8 in. to 10 in.)	3	17	6	...	4	0 0
Small timber (6 in. to 8 in.)	3	5	0	...	3	10 0
Swedish balks	2	12	6	...	3	0 0
Pitch-pine timber (30 ft. average)	5	5	0	...	6	0 0

JOINERS' WOOD.	At per standard.					
	£	s.	d.		£	s. d.
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	...	25	10 0
3 in. by 9 in.	22	10	0	...	23	10 0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	...	18	0 0
Second yellow deals, 3in. by 11in.	19	0	0	...	20	0 0
" " 3 in. by 9 in.	18	0	0	...	19	10 0
Battens, 2½ in. and 3in. by 7 in.	14	0	0	...	15	0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	...	15	0 0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	...	12	10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	...	22	10 0
Do. 3 in. by 9 in.	18	10	0	...	19	10 0
Battens	14	0	0	...	15	0 0
Second yellow deals, 3 in. by 11 in	16	10	0	...	17	10 0
Do. 3 in. by 9 in.	15	0	0	...	16	0 0
Battens	11	10	0	...	12	10 0
Third yellow deals, 3in. by 11 in.	13	10	0	...	14	10 0
Do. 3 in. by 9 in.	13	0	0	...	14	0 0
Battens	10	10	0	...	11	0 0
White Sea and Petersburg—First white deals, 3 in. by 11 in.	15	0	0	...	16	0 0
" " 3 in. by 9 in.	14	0	0	...	14	10 0
Battens	11	10	0	...	12	10 0
Second white deals, 3in. by 11in.	14	0	0	...	15	0 0
" " 3 in. by 9 in.	13	0	0	...	14	0 0
Battens	10	10	0	...	11	0 0
Pitch-pine: deals	19	0	0	...	21	0 0
Under 2 in. thick extra	0	10	0	...	1	0 0
Yellow Pine—First, regular sizes	48	0	0		upwards.	
Oddments	32	0	0		"	
Seconds, regular sizes	33	0	0		"	
Oddments	28	0	0		"	
Kauri Pine—Planks per ft. cube.	0	4	6	...	0	6 0
Danzig and Stettin Oak Logs—Large, per ft. cube	0	3	0	...	0	3 9
Small " "	0	2	6	...	0	2 6
Wainscot Oak Logs, per ft. cube	0	6	6	...	0	8 0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	£	s.	d.		£	s. d.
Dry Wainscot Oak, per ft. sup. as inch	0	0	10	...	0	1 0
¼ in. do. do.	0	0	8½	...	—	
Dry Mahogany—Houndras, Tabasco, per ft. super. as inch	0	0	10	...	0	1 1
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2 6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1 0
Teak, per load	18	0	0	...	22	0 0
American Whitewood planks, per ft. cube	0	5	0	...	0	6 0
Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17 0
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18 0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0 0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14 6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15 0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13 6
1 in. by 7 in. " "	0	14	0	...	0	18 6
¾ in. by 7 in. white " "	0	10	0	...	0	11 0
1 in. by 7 in. " "	0	12	9	...	0	15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton.					
	£	s.	d.		£	s. d.
Rolled Steel Joists, ordinary sections	7	10	0	...	8	0 0
Compound Girders, ordinary sections	9	10	0	...	10	0 0
Steel Compound Stanchions	11	0	0	...	12	0 0
Angles, Tees, and Channels, ordinary sections	9	10	0	...	10	0 0
Flitch Plates	9	10	0	...	9	10 0
Cast Iron Columns & Stanchions, including ordinary patterns	7	10	0	...	8	10 0

METALS.

IRON—	Per ton, in London.					
	£	s.	d.		£	s. d.
Common Bars	9	0	0	...	9	10 0
Staffordshire Crown Bars, good merchant quality	9	5	0	...	9	15 0
Staffordshire "Marked Bars"	11	0	0	...	—	
Mild Steel Bars	9	5	0	...	9	15 0
Hoop Iron, basis price	10	0	0	...	—	
" " Galvanised	17	10	0	...	—	

(*And upwards, according to size and gauge.)

Sheet Iron Black—						
Ordinary sizes to 20 g.	10	5	0	...	—	
" " 24 g.	11	5	0	...	—	
" " 26 g.	12	15	0	...	—	

METALS (*Continued*).

IRON (*Continued*)—	Per ton, in London.					
	£	s.	d.		£	s. d.
Sheet Iron, Galvanised, flat, ordinary quality—Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0	...	—	
Ordinary sizes to 22 g. and 24 g.	16	0	0	...	—	
" " 26 g.	17	0	0	...	—	
Sheet Iron, Galvanised, flat, best quality—Ordinary sizes to 20 g.	18	10	0	...	—	
" " 22 g. and 24 g.	19	0	0	...	—	
" " 26 g.	20	10	0	...	—	
Galvanised Corrugated Sheets—Ordinary sizes, 6ft. to 8ft. 20 g.	15	0	0	...	—	
" " 22 g. and 24 g.	15	5	0	...	—	
" " 26 g.	16	15	0	...	—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	10	0	...	—	
Best Soft Steel Sheets, 2 g. & 24 g.	13	10	0	...	—	
" " " 26 g.	15	10	0	...	—	
Cut Nails, 3 in. to 6 in. (Under 3 in., usual trade extras.)	11	0	0	...	11	10 0

LEAD, &c.

	£	s.	d.		
LEAD—Sheet, English, 4lb. and up	23	5	0	...	—
Pipe in coils	23	15	0	...	—
Soil pipe	26	15	0	...	—
Compo pipe	26	15	0	...	—
ZINC—Sheet—	In casks of 10 cwt.				
Vielle Montagne	33	15	0	...	—
Silesian	33	10	0	...	—
Zinc, in bundles, 1s. per cwt. extra.					
COPPER—					
Strong Sheet per lb.	0	1	0	...	—
Thin " "	0	1	1	...	—
Copper nails "	0	0	10	...	—
Copper wire "	0	0	10	...	—
BRASS—					
Strong Sheet "	0	0	11	...	—
Thin "	0	1	0	...	—
TIN—English Ingots "	0	2	0	...	—
SOLDER—Plumbers' "	0	0	9½	...	—
Tinmen's "	0	1	0½	...	—
Blowpipe "	0	1	2½	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3½d.
" fourths	1½d.	32 oz. thirds	5d.
21 oz. thirds	3½d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
26 oz. thirds	4d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

¼ Rolled plate	2½d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d.
⅛ Rough rolled and rough cast plate	2½d.		
¼ Rough rolled and rough cast plate	3d.	Ditto, tinted	5d.

* Not less than two crates.

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POINTS OF MERIT:

Favourable Situation.

Immingham Dock is geographically the most central coal port for the Continent, and is in direct rail communication with the great coalfields of the West Riding and South Yorkshire, Derbyshire, Nottinghamshire, &c.

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SAM FAY, General Manager.

OILS, &c.		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	3	2
" " " in barrels	"	0	3	3
" " " in drums	"	0	3	5
Boiled " " in barrels	"	0	3	5
" " " in drums	"	0	3	8
Turpentine in barrels	"	0	2	11
" in drums	"	0	3	1
Genuine Ground English White Lead, per ton		30	0	0
Red Lead, Dry	"	26	10	0
Best Linseed Oil Putty	per cwt.	0	10	6
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the prepaid rate of 18s. per annum, with delivery *by Friday Morning's Post* in London and its suburbs.

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Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 6 p.m. on *Wednesday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ASHDOWN FOREST (Sussex).—For the erection of new house, "Greenwood Gate," for the Countess of Newbury. Mr Fredk. W. Foster, architect, 52, Seymour-street, Portman-square, W. Quantities by Mr. L. H. G. Stanbrough, 20, Bedford-row, W.C.:—

J. Simpson & Son	£19,891	Perry & Co.	£17,617
H. & E. Waters	19,186	Holland & Hannen	17,522
J. Longley & Co.	17,948	J. Carmichael	17,135

FOLKESTONE.—For the erection of a house, lodge, stables, etc., on the Acrise Estate, near Folkestone. Mr. Henry F. Mence, architect, St. Albans. Quantities by Mr. A. E. McEwan-Waghorn, M.Q.S.A., 8, King William-street, Charing Cross, W.C.:—

Kirk & Randall	£5,643	R. Webster	£4,587
G. E. Wallis & Sons, Ltd.	4,984	C. Brightman & Son	4,553
J. Gosby	4,830	S. Vant	4,498
C. Jenner	4,760	T. E. Moody	4,497
S. Redhouse & Son	4,755	T. Barker & Sons	4,497
O. Marx	4,660	Hayward & Paramor	4,449
W. S. Barton & Co.	4,649	W. E. Blake, Ltd.	4,420
G. Castle & Son	4,638	C. Miskin & Sons, Ltd.	4,253
Scott Bros.	4,600	C. Watts & Co., Finchley*	4,020
G. Kemp & Co.	4,589		
R. A. Lowe & Co.	4,587		

GOLDER'S GREEN.—For the erection of a new police-station at Golder's Green. Mr. J. Dixon Butler, F.R.I.B.A., Surveyor to the Metropolitan Police, New Scotland-yard, S.W. Quantities by Messrs. Thurgood, Son, & Chidgey, 8, Adelphi-terrace, Strand, W.C.:—

J. W. Jerram	£10,844	Prestige & Co., Ltd.	£10,146
Moss & Sons, Ltd.	10,680	G. E. Wallis & Sons, Ltd.	10,132
Rice & Son	10,536	Sabey & Son, Ltd.	10,120
A. Fairhead & Son	10,276	A. E. Symes	9,997
W. Taylor & Co	10,230	Lole & Co.	9,965
Holland & Hannen	10,221	J. Grover & Son	9,872
Kilby & Gayford, Ltd.	10,160		

HOVE.—For executing paving and other works in Modena-road and Lyndhurst-road, for the Corporation of Hove. Mr. H. H. Scott, Borough Surveyor, Town Hall, Hove:—

Modena-road.

McKellar & Westerman, 13¾, Church-road, Hove £173 10

Lyndhurst-road.

J. Parsons & Sons, 176, Church-road, Hove £173 0

HOVE.—For constructing new sewers in Queen's-gardens, Grand-avenue, The Drive, Holland-road, and Davigor-road, for the Corporation of Hove. Mr. H. H. Scott, Borough Surveyor, Town Hall, Hove:—

G. Bell & Son, Ltd., Bruce-grove, Tottenham, London £7,344

LONDON.—For taking up and renewing with pitch-pine the flooring of two wards at the Chelsea Infirmary, Cale-street, S.W., for the Chelsea Board of Guardians. Mr. Edward J. Harrison, architect, 9, Gray's Inn-square, W.C.:—

J. F. Ebner	£261 10 0	W. J. Harris	£198 5 0
W. Norton	240 0 0	J. Johnston	189 17 6
R. Curzon & Co.	235 0 0	Markham & Markham	173 0 0
Best & Gapp	231 0 0	W. S. Sharpin, Wellington-road, Bow*	157 16 0
A. G. Chamberlain, Ltd.	227 12 0		
W. Ludlow	205 0 0		

LONDON.—For construction of walls and gables to existing machine shop, sec. 41-88, for Messrs. Gilson & Co. Messrs. Gordon Wilson & Co., architects, 356, Kingsland-road, N.:—

A. Webb‡ £225 0
G. Hasler & Son‡ 206 15

‡ Under consideration.

PONTYPOOL.—For extension of the headquarters of the 2nd Battalion of Monmouthshire Regiment, for the Monmouthshire Territorial Association. Messrs. Jenkins, James, & Co., architects, Newbridge, Mon.:—
G. F. Leadbeter, Newport* £762 18 7

ST. NEOTS (Hunts).—For rebuilding a portion of the paper mills recently destroyed by fire, for the St. Neots Paper Mills Company, Ltd. Mr. Edward J. Paine, architect, Clacton:—

W. Wade
Allen & Son
Thackray & Co., Ltd.
Wrycroft & Sons, St. Neots*
} Upon a schedule of prices.

[Estimated cost about £4,000.]

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